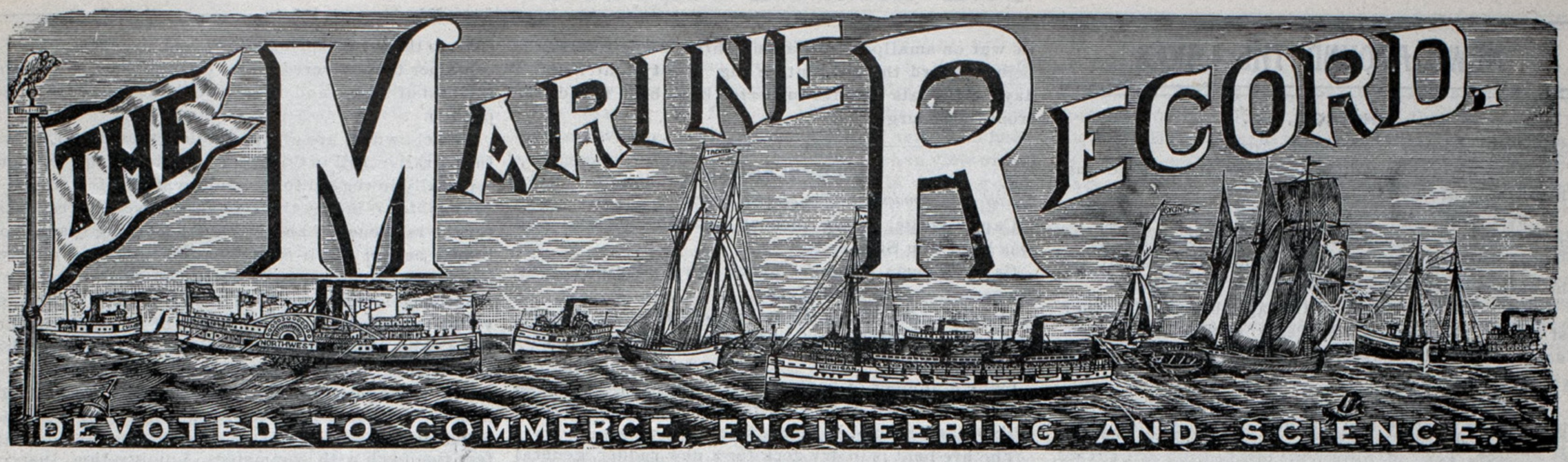

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VOL. XVII. CLEVELAND, OHIO, MAY 10, 1894. NO. 19

LAKE CARRIERS' ASSOCIATION.

To consider and take action upon all general questions relating to the navigation and carrying business of the Great Lakes, maintain necessary shipping offices and in general to protect the common interest of Lake Carriers, and improve the character of the service rendered to the public.

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LAKE YACHTING.

Yachtsmen at all lake ports are beginning to get their craft in order for a brisk season's sport, and more yachting is likely to be seen this summer, especially on the lower lakes than in any preceding year. The Toronto Yacht Club ably supports the prestige of Canadians on Lake Ontario, but it is likely that the most pleasure will be taken out of Lake Erie yachts, although Chicago owners also intend to shake up the pastime for all it is worth, and the Columbia Yacht Club has an energetic regatta committee already at work fixing dates.

MEDICAL INSPECTION FOR STEAMERS.

Dr. John B. Hamilton, of the Marine Hospital, service, Chicago, has received orders from Washington, to establish a medical inspection of all passenger steamers leaving the port of Chicago. The inspection, which begins this week, will be made at the Rush street bridge, where the steamers are hailed by the custom officers. A medical inspector with one assistant will be on duty day and night. The inspection will delay the steamers but a few minutes. "This inspection," said Dr. Hamilton, "has been ordered for the benefit of the vesselmen. In many of the ports up the lake there is such a fear of smallpox that it interferes greatly with business. The fact that the steamers and their crews are examined before leaving Chicago will tend to allay this fear. It will also prevent contagion. When it is found that all on board are well the vessels will be given clean bills of health, as the steamers leaving ocean ports are, and they cannot then be prevented from landing at their destination.

STATEMENT OF COMMERCE EAST AND WEST BOUND

THROUGH ST. MARY FALLS CANAL, MICHIGAN, FOR MONTH OF APRIL, SEASON 1894.

EAST BOUND.

ITEM.	Designation.	Apr. '94
Copper	Net tons	650
Corn	Bushels	163,300
Building Stone	Net tons	.....
Flour	Barrels	302,480
Iron Ore	Net tons	56,501
Iron Pig	" "	.....
Lumber	M. ft. B. M.	1,159
Silver Ore	Net tons	.....
Wheat	Bushels	921,466
Unclassified Freight	Net tons	6,586
Passengers	Number	48

WEST BOUND.

ITEM.	Designation.	Apr. '94
Coal, Anthracite	Net tons	27,398
Coal, Bituminous	" "	31,052
Flour	Barrels	36
Grain	Bushels	.....
Manufactured Iron	Net tons	133
Salt	Barrels	3,000
Unclassified Freight	Net tons	8,311
Passengers	Number	108

East bound freight, net tons	128,156
West " " " "	67,349
Total freight, net tons	195,505

Canal opened May 1st, 1893 and April 17th, 1894.

COLLISION, THROUGH CHANGE OF PILOT RULES.

The steamer Charles Hebard, with lumber from Pequaming, Mich., towing three barges, also laden with lumber, reached Detroit on Monday for temporary repairs to enable her to proceed to Tonawanda. On survey it was found that repairs would cost about $2,500, the result of a collision with the steamer Mariposa in Saginaw bay, at 5 o'clock Saturday evening. Capt. James Parsons, who is in command of the Hebard, says that the accident occurred about twenty miles from Point au Barque, at the mouth of Saginaw bay, in a dense fog, and the two vessels ran together before they could see each other. The Mariposa had time to give two signals, and the Hebard none at all before they came crashing together. He says no one was to blame, but attributes the collision to the new pilot rules prohibiting the use of passing signals in a fog before the approaching vessel can be seen. The Mariposa was uninjured as she is a large steel vessel and easily bore the brunt of an end on blow.

NAUTICAL PHRASEOLOGY.

Relative to terms connected with ships, an exchange remarks that while military terms are derived from the Normans, the greater number of our naval ones came from the Saxon and Dutch, such as ship, boat, boom, etc. The terms larboard and starboard come from the Italian "questa borda" and "quella borda," which by rapid delivery became starboard and larboard; but owing to the strong similarity of sound, have been changed into starboard and port (Latin "porto," to carry), the use of the terms in the original form having been the cause of many accidents. Quaterdeck originated from the arrangement that the portion of the deck so-called was about one-fourth of the whole space. Fore or forward castle received its name as being the principal part of the ship in which the fighting took place, being raised much above the level of the other part of the deck, and holding a commanding position. Poop, the raised after-part of the ship set aside for officers, both in meaning and derivation comes from the Latin. Gangway has been handed down from the days of the ancient galley of the Phœnicians, Carthaginians and Romans, it having been a board which ran along the whole length, serving as a passage for the rowers to and from their seats. It was also utilized as a resting place for the mast and sail when not in use. The term now denotes a place of exit or entrance from or to a vessel, generally from the shore by means of a long plank or platform.

NOTICE TO MARINERS.

UNITED STATES OF AMERICA—NORTHERN AND NORTHWESTERN LAKES—MICHIGAN.

WHITEFISH POINT LIGHT.—Notice is hereby given that on or about May 15, 1894, the intensity of the light at Whitefish Point Light-Station, Lake Superior, Mich., will be increased by the substitution of a second-order burner for the third-order burner now in use. No other change will be made in the characteristic of the light.

By order of the Light-House Board:

JAMES A. GREER,
Rear-Admiral, U. S. Navy, Chairman.

Office of the Light-House Board,
WASHINGTON, D. C., May 7, 1894.

THE ST. LAWRENCE AND CHICAGO STEAM NAVIGATION CO.

A steamboat deal which is of much interest to Canadians was recently arranged between the owners of the big steamer Algonquin and the steamer Rosedale. Messrs. Thomas Marks & Co., of Port Arthur, have been managing owners of the Algonquin and Messrs. Hagarty & Co., of Toronto, of the Rosedale. The two companies have been consolidated under a Dominion charter as the St. Lawrence & Chicago Steam Navigation Co., Limited. In future the head office of the company will be in Toronto. W. D. Mathews, of Toronto, one of the directors of the Canadian Pacific Railway, is president of the new company; the other directors are Capt. Crangle, Thomas Marks, George T. Marks, F. W. Kingston and John H. G. Hagarty, the latter is secretary and treasurer of the company. We understand that the cause of the consolidation has been owing to the fact that these boats, which are the biggest and best freighters in Canada, have been running in opposition, cutting rates on one another. That, combined with the fact of the exceedingly high telegraphic rates to Port Arthur and the slowness with which the market and freight news were received made it inconvenient to operate a freight steamer economically at such a distance from the chartering centers.

NEWS AROUND THE LAKES.

CHICAGO, ILL.

Special Correspondence to The Marine Record.

Chartering is slower just now than at any time since the opening of navigation.

A new whaleback tug is talked of here although we are well stocked already with a capable fleet of tugs.

One of the Vermont Central Line steamers will tow the barges Monominee and Whitbeck to Kingston.

Captain Emil Christen, of Chicago, has sold his interest in the schooner L. W. Perry to Captain Jacob E. Jacobson, of Milwaukee, for $800. Captain Jacobson will sail the Perry.

The engine and boiler has been placed in the new steam yacht Contest and Randall & Son, her builders, are putting up her cabin engine and boiler rooms and pilot house.

Captain Daniel McLeod, manager of Inland Lloyds, was in Chicago, Tuesday, on business. Captain Dan has scores of friends at this port who are always glad to see him and grasp his honest hand.

Palmer, Cook & Calbick, vessel agents, have removed their offices from 23 Sherman street to 108 and 109 Royal Insurance building. The firm chartered the steamer W. H. Wolf for corn to Buffalo at 1¼ cents.

The Board of Trade has passed resolutions condemning the proposition to erect a bridge across the river at LaSalle street, on the ground that it would decrease the carrying capacity of large boats fully 25 per cent.

The Dunham Towing and Wrecking Company have sent the tugs Bob Teed and Josie Davison to search for tug Wm. R. Crowell which sank six or seven miles off Michigan City, Dec. 3, 1893, when going to the wrecked steamer F. W. Wheeler.

The schooner James G. Blaine had to strike her fore and main topmasts to enable her to go under the new South Halsted street elevated bridge. Her topmasts will require to be shortened four or five feet to save her from the same trouble in future.

Alexander Reid, mate of the steamer M. F. Butters, fell between the steamer and the dock Monday, at Menominee, and was instantly killed. The deceased was a member of the Shipmaster's Association. His brother, Capt. R. C. Reid, commands the steamer Butters.

The Susquehanna loaded on Wednesday the largest cargo of package freight ever carried out of Chicago. It was 3,067 tons, on a draft of 16 feet 6 inches aft and 16 feet forward, or a mean draft of 16 feet 3 inches. The recent changes in the Susquehanna have greatly increased her carrying capacity.

The Goodrich Transportation Co.'s steamer City of Ludington, captain, J. C. Raleigh, arrived Sunday afternoon from Manitowoc, where she had undergone a thorough overhauling and re-painting inside and out. She went into commission Monday and loaded freight and left Monday evening to run on her regular summer season's route between Chicago and Manistique and way ports.

The steamer Roanoke recently purchased by Capt. A. D. Campbell, from J. H. Pauly, has been rebuilt. She has received 40 feet of new bottom, new decks, stanchions and rail aft, new cabin and engine room, and her engine has received a thorough overhauling. She has been chartered to Mr. Ellis of the Starch Works, Brantford, Ont., who will place his centrifugal pump on board to pump the grain out of the steamer W. H. Barnum, which sank in the straits of Mackinaw, in April last.

At Miller Bros.' shipyard the schooners D. R. Martin and J. B. Merrill were in dock to have leaks stopped; the steamer Soo City for bottom scraping; the steamer W. J. Averill for bottom calking; the barge Empire State for a thorough overhauling of hull and decks and converting into a grain lighter; steamer Allegheny for repairs to shoe and rudder; the tug Mentor for a new wheel; the schooner J. B. Wilbur for bottom calking and a new center board; the steamer G. T. Burroughs for shipping rudder.

P. H. Fleming chartered the steamer Ionia for oats to Buffalo at 1⅜ cents. J. J. Rardon & Co. chartered the steamer Caledonia for wheat to Buffalo at 1½ cents. W. M. Egan chartered the steamer J. C. Lockwood for corn to Buffalo at 1¼ cents. Captain John Prindiville chartered the barges Menominee and Whitebeck for wheat and corn to Kingston at 2½ cents, free of canal tolls, the steamer John N. Glidden for 75,000 bushels of clipped oats to Buffalo at 1⅜ cents, the schooner H. W. Sage for wheat to Erie at 1½ cents, the steamer C. H. Greene for four cargoes of wheat to Milwaukee at 1 cent free out, the steamer Egyptian for 1,700 tons of bulk salt, Cleveland to Chicago.

Every boat leaving port is being inspected by the Marine hospital service and their crews vaccinated. Vessel captains are interposing no obstacles to the inspection. It is expected that the service will keep up its war on smallpox for about three weeks, surgeons being aboard the quarantine tug twenty-four hours a day. All boats thus far inspected have been found free from the scourge.

CLEVELAND, O.

Special Correspondence to The Marine Record.

Capt. George Young died at Lakeside hospital and was buried on Sunday last.

Capt. Thomas Wilson returned on Wednesday from his recent visit to New York.

Marine underwriters, Capt. David Vance, of Milwaukee, and C. A. McDonald, of Chicago, visited this port on Wednesday.

Quite a number of boats are now testing hard coal as a fuel with fairly good results, and this too without making any change in their grates.

The fire boat is in dry dock for a new rudder, general overhauling and repairs. The river front will thus be without its best fire protection for several days.

F. R. Gilchrist & Co. have taken over the lumber business at Bell, Cartwright & Co.'s old stand. The new firm have exceptional facilities for filling orders for lumber of all sizes.

Capt. John W. Moore and Judge L. H. Ware have closed a contract with Murphy & Miller for a handsome modeled sailing yacht to be completed at an early date. Her dimensions are to be 55 feet keel, 19 feet beam and 7 feet deep.

Charters from Ashland to Ohio ports and South Chicago are now quoted at 80 cents and a large business was done at that figure on Wednesday. The fuel famine is responsible for the raise in freights which will probably go a notch or two higher even this week.

Capt. Fish, of the Kalkaska, residing in St. Clair, Mich., met with a serious accident on Wednesday through being struck by an engine at a railroad crossing. He will hardly be able to return to Oscoda on the next trip of his steamer though he desires to.

The Canadian cruiser Petrel captured a number of Americans on Lake Erie on Tuesday for illegal fishing. Two small steamers were also seized and taken to Amherstburg to await the action of the Dominion minister of marine. If Canadians are not allowed to fish during the close season Americans ought not to try to evade the fishery laws.

A number of boats have been waiting here this week for fuel, coal men being unable to obtain adequate supplies. There is plenty of coal at upper lake ports but to get there is the question agitating owners more day by day, while the supply is getting less. Unless the coal miners' strike is settled a majority of the tonnage will be tied up in a very short time.

The schooners Jupiter and Leader were attached here this week for taxes. The principal owner of the vessels is John E. Mills, of Marquette, Mich. The taxes were paid under protest and suit brought against the county for the amount. A vessel owner remarked that if this kind of work is kept up by the county officials there will not be a new vessel enrolled in the county and sixteen have already changed their port of hail.

Capt. C. E. Benham objected to the county treasurer tying up fifteen-sixteenths interest in the steamer Tuttle on Monday, for the local tax due, or said to be due, from a resideut of Kentucky who owns the remaining sixteenth interest. As ship-husband, Capt. Benham obtained an injunction allowing the Tuttle to fulfill existing contracts, and followed up this action by entering a petition in Court of Common Pleas in which he sues the city treasurer in the sum of $1,000 for illegally detaining floating property. The amount of tax was only $32 but if this is carried on a personal property tax list in the state of Kentucky, it seems unjust to assess the property also in Ohio. The outcome of the suit will be watched by vessel men.

BUFFALO, N. Y.

Special Correspondence to The Marine Record.

Capt. Duncanson, of the steamer J. V. Farwell, is laid up with inflamatory rheumatism at this port.

On May 1 the vessels registered in the Lake Carriers' Association aggregated 613,000 tons. This, it is said, is about 6,000 tons more than was in the association at any time last season.

It is rumored that Capt. M. Galvin, of the vessel brokerage firm of Galvin, Clark & Boland, will be appointed supervising inspector of steam vessels for the Ninth district, in place of Capt. Alexander McMasters, when the latter's term expires.

Fuel is scarce here at $4 a ton. The Panther coaled at Detroit on her way down, paying $2.60, and will take on 160 tons more on her way up. Captain T. D. Gibson, who sails the Panther, says there is still some coal at upper lake ports, but that it is getting scarcer.

The captain of the S. E. Baldwin, which arrived Tuesday night with lumber says that fuel is scarce at Sturgeon Bay. He says that he took a cargo of soft coal up there this spring which cost the consignees $2.15 cents per ton delivered there, less than the price here in the best of times, and they sold it out at once at $5.50 per ton.

Vessel owners are of the opinion that the Lockwood Immigration Bill in Congress is a trifle too sweeping, especially in regard to the employment of men on the vessels, for it makes the master of a vessel responsible for the residence of all his men, something that he could hardly be, yet if it is found that he employs a man who has not been permanently domiciled in this country six months he is liable to a fine of $300 to $500. This provision is, without doubt, the work of the labor organiztions, who complain that Canadians come over here, take out their first naturalization papers, work on the lakes through the season and then go back to their homes in Canada. Still, to refuse a master the privilege of picking up a crew whenever he is short would interfere too much with commerce. Immigration Inspector DeBarry is, of course highly in favor of the restriction.

DETROIT, MICH.

Special Correspondence to The Marine Record.

Capt. H. W. Baker purchased the steam barge T. W. Snook from Capt. William Crockett, of St. Clair, and is now having her rebuilt for a wrecker.

The Crescent Line steamer W. H. Stevens shipped new smokestacks, this week, at the Riverside Iron Works of Samuel F. Hodge & Co.

The Maumee river steamer Pastime has been placed in the Clark drydock at Springwells, to be caulked and overhauled. She is a river steamer, built on the Mississippi river plan, with low decks and horizontal engines.

The steamer Nipigon, with lumber from Portage Entry, towing the schooners Melbourne, with lumber from L'Anse, and the Delaware, with lumber from Marquette for Ogdensburg, coaled at Shipman's dock. Although the firm find it difficult to meet steady orders, yet they want to oblige their marine patrons as well as their shore customers.

The big ice crusher Saint Marie, of the Mackinac Transportation Co., is at the Detroit drydock to have a nine-ton propeller wheel put on. The wheel is already made, and is the largest single casting ever made here. The blades are three inches thick at the points, while the usual thickness is 1½ inches.

The United States steamer Flessenden has come out of the Detroit drydock, and presents a far more creditable appearance than formerly. She has been painted white with fiddle-head gilded, etc.

SAULT STE. MARIE, MICH.

Special Correspondence to The Marine Record.

The Curry arrived here Wednesday afternoon. Her port bow is stove in for fifteen feet back. Temporary repairs will be made here and she will get away for Cleveland on Thursday.

Capt. C. H. Sinclair, wrecking master for McDonald & Co., of Chicago, has been sent here to protect the underwriters interests, as the Curry is fully covered with insurance, including collision liability

The most disastrous collision in the Sault passage for two years occurred Wednesday morning at the foot of Little Lake George. The large steel steamer S. S. Curry, bound down ore laden, and the whaleback steamer A. D. Thomson, bound up light, came together with a crash, at six o'clock. The Curry's bow was crossed in, and her forward compartment filled with water. Her damages are estimated at $30,000. She will be able to proceed after lightering about 300 tons. The Thomson was struck on the port side about twenty feet from the stem, and is more seriously damaged than the Curry. Her nose is knocked all out of shape and she has been run aground. The lighter Mentor went to the assistance of the two steamers. The Curry is owned by H. A. Hawgood, of Cleveland, and is fully insured. It is thought that the whaleback has no insurance.

ERIE, PA.

Special Correspondence to The Marine Record.

The city health authorities have become alarmed over the possibility that smallpox might be brought here from Chicago on large boats, and have began an enforced vaccination on the crews of all boats trading between here and Chicago. The crew of the Anchor line steamer Delaware were the first to come under the new rule. General Manager E. T. Evans, of the Anchor line has instructed his agents to have all the men on the boats vaccinated at once, and to have the line steamers inspected and given a clean bill of health before leaving Chicago.

SCHOONER GRAMPIAN LAUNCHED.

The successful launch of the first of the four wooden vessels building at the yard of Capt. James Davidson, Bay City, Mich., took place on Saturday afternoon The new schooner has been named the Grampian and has been constructed on builder's account. She is 220 feet keel, 38 feet beam and 14 feet hold. She will carry 65,000 bushels of wheat through the canal, or 1,500,000 feet of lumber. She will be ready for service in a few days.

THOSE PASSING SIGNALS IN FOG.

The following reply from the Secretary of the Treasury to a communication sent by the Cleveland Shipmaster's Association, will serve to enlighten the sailing community on the fog signal question:

Captains J. A. Holmes and James Stone, committee, Clevelana Lodge No. 4, Shipmaster's Association, Cleveland, Ohio.

GENTLEMEN: This department is in receipt of your communication of the 21st inst., calling attention to department circular No. 36, February 28, 1894, entitled, "Resolutions Relating to, and Changes in Pilot Rules." Referring to one of the resolutions therein, designated by yourselves as an "amended rule," you state that it "meets with most positive disapproval from our (your) entire body," and that its enforcement would "result in more frequent collisions, greatly increasing the danger to life and property." for which reason you ask "that the amendment referred to be stricken out, or in some way repealed so far as it concerns our lakes and rivers."

Your letter having been referred to the supervising inspector general, that officer reports: First, that the resolution to which you refer is not an amendment to the pilot rules for lakes and seaboard, nor does it in any way change those rules in the matters set forth in the resolution, which are substantially the same to-day as when they were first adopted by the board of supervising inspectors, October, 1857, under the 29th section of the act of congress approved August 30, 1852, and reenacted under section 29, of the act approved Feb. 28, 1871, now section 4412, revised statutes, which is quoted herein as follows:

"Section 4412. The board of supervising inspectors shall establish such regulations to be observed by all steam vessels in passing each other as they shall from time to time deem necessary for safety; two printed copies of such regulations, signed by them, shall be furnished to each of such vessels, and shall at all times be kept posted up in conspicuous places in such vessels."

The rules for passing adopted by the board, under the statute above quoted, and acts of congress referred to which preceded it, were based wholly, as an examination of such rules will clearly determine, upon the basis of the visibility of one steamer from another at the time the passing signals are authorized to be given by such steamers, and not otherwise; and, as far as the board of supervising inspectors is concerned, it was never supposed, until recently, that the passing signal rules were not so understood by pilots upon all the navigable waters of the United States.

In the fall of 1893, parties discussing with the supervising inspector general the frequent collisions in fogs on the lakes, notably during that year, the cases of the Arthur Orr and Thomas H. Smith, Nov. 11, the last-named steamer having been sunk in the collision, the steamers James B. Colgate and Athabasca, Nov. 10, the Colgate being badly damaged in the collision; and the Albany and Philadelphia, Nov. 7, in which collision both steamers were sunk and twenty-four lives lost. The probable cause of said collisions was attributed to the improper use of the passing signals of the board of supervising inspectors by the vessels in collision, when neither of such vessels was visible to persons in command of the steamers, and therefore not in possession of the positive information necessary to make such passing signals safely available. Such being the possibilities in the cases referred to, the board of supervising inspectors would have been justly chargeable with dereliction of duty, had they not taken some action in the matter that would prevent, so far as possible, such mistaken use of the rules, if, as had been suggested, such mistaken use should be prevalent. Therefore, the passage of the resolutions of instruction to local inspectors, to which the Cleveland Shipmaster's Association take exception.

In connection with said resolution, the supervising inspector general would suggest that the urgent necessity therefore is made more than manifest in the communication to which this report is a reply; where it will be seen that, while the writers thereof insist on the privilege of using passing signals in fogs and thick weather when vessels can not be seen one from the other, yet in the same paragraph in which such demand in the letter is made, "admit the uncertainty of perfectly locating the position of an approaching steamer on all occasions by her whistle," an admission on their part containing the very essence or basis upon which the resolution to which they object is grounded.

The rules of the board of supervising inspectors, in every instance, give the exact locations of opposing vessels when the opposing signals may be used, such locations being impossible of determination except when the steamers which may use them are visible to each other. Rule 1, for instance, applies to the situation "when steamers are approaching each other head and head or nearly so;" also when "the course of such steamer is so far on the starboard of each other as not to be considered by pilots as meeting head and head;" neither of which conditions could be determined except by actual sight of the vessels one from the other, to which rule there has been appended since its first adoption in 1857, a note reading as follows: "NOTE.—In the night, steamers will be considered as meeting head and head so long as both the colored lights are each in view of lhe other." Rule 2 refers to passing signals to be given "when steamers are approaching each other in an oblique direction," clearly indicating positions that can only be safely determined by actual visibility and not by guess work. The sound of a steam whistle in a fog is, as proven by experience, more often deceptive than correct—a fact admitted by the writers, as heretofore quoted from their letter; who, notwithstanding such admission, insist on the privilege of using such uncertain method of location of contiguous steam vessels in a fog or thick weather.

In conclusion, the supervising inspector-general desires to say that the Cleveland Shipmasters' Association has been misinformed in supposing that the rule (resolution) to which they object resulted from any recommendation of the late international marine conference. If, however, that distinguished body of practical and scientific navigators from all parts of the world did make any recommendations affirmative of the principles of the rules of the board of supervising inspectors, after forty years practical test of such rules, the wisdom and practicability of the rules must be fairly conceded.

In view of the statements set forth in the above report of the supervising inspector general, the department would be reluctant to interfere in the action of the board of supervising inspectors, of which complaint has been made, but would suggest that parties desiring changes in the rules of the board should present their reasons therefor at its regular meeting in January next.

W. E. CURTIS, Acting Sec'y,

Office of the Secretary of the Treasury, Washington, D. C., April 30, 1894.

THE UNITED STATES COMMISSIONER OF NAVIGATION.

The bill authorizing the institution of the Bureau of Navigation was adopted July 5, 1884, and a Commissioner of Navigation was placed in immediate charge

HON. E. T. CHAMBERLAIN.

under the direction of the Secretary of the Treasury. The duties of the commissioner were and are "to exercise a general superintendence of the commercial marine and merchant seamen of the United States, so far as vessels and seamen are not, under existing laws, subject to the supervision of any other officer of the government." This supervision consists in presenting to the government an annual report of the condition of the shipping interests of the country in the most inclusive form possible. The commissioner is also charged with the admeasurement, register and enrollment of vessels, the assignment of official numbers and signal letters, as well as the execution of the laws relating to these and kindred subjects, and to investigate the operations of the laws relative to navigation in all its details.

The Hon. Jarvis Patten was appointed Commissioner of Navigation and compiled the first annual report of the shipping interests of the country in 1884. The present incumbent of this office is the Hon. Eugene Tyler Chamberlain, a brief synopsis of whose career we are pleased at this time to publish.

Mr. Chamberlain, the son of Gen. Frank Chamberlain, was born in Albany, N. Y., September 28, 1856. He gained a high standing for scholarship at the Albany academy and was elected president of the Beck Literary Society. He graduated in a class of six, which included Henry James Ten Eyck and Louis J. Swinburne, entered Harvard College in 1874, graduating in 1878 with honors in metaphysics. After leaving college Mr. Chamberlain returned to Albany and taught Greek, elementary mathematics and rhetoric in the Albany academy. He eventually resigned from the academy faculty to become a partner with his father in the grain business, with whom he was associated until 1882, when he entered upon active newspaper work as associate editor of the Albany *Journal*.

His particular ability for literary work won him speedy recognition as one of the best equipped newspaper men in the state. At various times, in addition to his regular duties upon the *Journal*, he was special correspondent of the New York *Sun*, the *World*, *Tribune*, *Commercial Advertiser*, Boston *Herald*, Philadelphia *Press*, Washington *Star* and several other papers. Mr. Chamberlain's antecedents were Republican in politics, his grandfather, Jacob P. Chamberlain, being Congressman from the Seneca district in war times and a personal friend of Lincoln, but the sympathies, sentiments and convictions of Eugene T. are solidly Democratic.

Mr. Chamberlain's editorial work upon the *Argus* as associate editor, which began in 1887, won for him the position of editor-in-chief on August 9, 1891, a position which he held until his present appointment. The office of Commissioner of Navigation is one of the most important posts in the Treasury Department, though the salary is only $3,600 a year, which is ridiculously low, considering the position which the commissioner holds relative to the discreet supervision and guidance of the United States mercantile marine and the strict advocacy required to introduce innovations and changes for the betterment of the laws on navigation and transportation by water.

THE SHEFFIELD-NORTH STAR COLLISION CASE.

The United States Circuit Court of Appeals, sitting at Cincinnati, O., on Tuesday affirmed the findings of Judge Brown, of the District Court of Michigan in the Charles Sheffield-North Star collision case. The case was first heard in 1890 and Judge Brown found the North Star at fault for not taking proper measures to stop and reverse her engine, and ordered a division of the damages and referred the case to a commission to compute and report the same. The commission fixed the damages of the Sheffield at $175,123.43, and the damages of the North Star at $6,637.05, making a total of $181,760.48. The amount to be paid by the owners of the North Star is about $90,000. The circuit court did not allow interest, although the district court did, this in itself would now amount to about $15,000.

The collision occurred in the afternoon of June 14, 1889, in a dense fog off Whitefish Point, Lake Superior. The Sheffield was bound from Chicago to Two Harbors. After passing Whitefish Point she was put upon a W. NW. course. While upon this course with a smooth sea and light wind and with her fog signal blowing she heard the distant sound of a steamer's whistle nearly ahead. Her engines were checked, when the signal was heard again a little upon her starboard bow. She checked again and a signal of two blasts blown, to which no answer was received. The signal was repeated and the Sheffield starboarded half a point. The North Star replied with one blast still a long distance away. The steamers approached exchanging signals of one blast until the North Star was apparently well off upon the port side of the Sheffield and all risk of collision seemed to be past. While in this situation a signal of two blasts was heard from the North Star apparently four points off the Sheffield's bow, the vessels being now too close to change sides by starboarding. The Sheffield answered with one blast and ported hard. Again the North Star blew two blasts, which were answered again by one, and the North Star appeared through the fog, heading for the Sheffield two lengths or more distant, on the port side and coming at great speed. The master of the Sheffield at once signaled to the engineer full speed astern and ordered the wheel amidships, but too late to be of service. The North Star struck the Sheffield at about right angles and near the port mizzen rigging, cutting into her six or eight feet and sinking her in deep water within five minutes so that she became a total loss. No lives were lost. Capt. C. C. Allen, now master of the steamer Castalia, was in command of the Sheffield and was the last man to leave her. The Sheffield was owned by Charles Sheffield, Harvey H. Brown and Fayette Brown, of Cleveland, and Capt. E. M. Peck, of Detroit. The North Star is owned by the Northern Steamship Co., H. B. Goulder, of Cleveland, and H. H. Swan, of Detroit, were proctors for the libellant, and C. E. Kremer and Robert Rae, of Chicago, for the claimant.

CLASSIFICATION REGISTERS AND BOOK OF RULES

FOR THE CONSTRUCTION OF STEEL VESSELS AND THEIR BASIS FOR SCANTLINGS.

(By Joseph R. Oldham, N. A. and C. E. Cleveland, O., Member of the Society of Naval Architects and Marine Engineers.)

PART NO. 4.

The difficulty in defining the ratio of scantlings by tonnage or numerals is that with tables of ordinary dimensions the steps must be abrupt, this cannot well be avoided (as we cannot use curves in our books), and it is the very nature of numbers (at least whole numbers) to be abrupt, in fact, two ships of very different dimensions may be required to have the same side plating, stringers and forgings. And the same weight of frames and reverse frames may frequently be required for vessels of different depths. These discrepancies may be partly compensated by an increase of the bilge and sheer strakes, and web-frames and floors (say, by making these dependent on other dimensions or proportions). This system of compensation by details has been carried out to a much greater and finer extent by other writers than myself, still this is hardly worthy of our precise and scientific age. Moreover, our best rules are applicable to ordinary ships only, at least I know of no rules that may be fairly and accurately used for the construction of such steamers as the "Whalebacks" and "Turrets." The frames of the former when carried over in the form of an ellipse to make the deck beam, are quite satisfactory, but no rules provide for this.

May we not reasonably expect that some of the great registration societies such as "Lloyds Register" or the "Veritas" will add a scientific formulæ (say, at the end of their present practical rules) by which such ships as Messrs. Doxfords or McDougalls may be constructed, for the circular or partially elliptical form may surely be constructed and classed with less transverse strength in the upper works than is required for ships having an almost rectangular form of midship body?

Let me now try to convey my views by a few small outline illustrations.

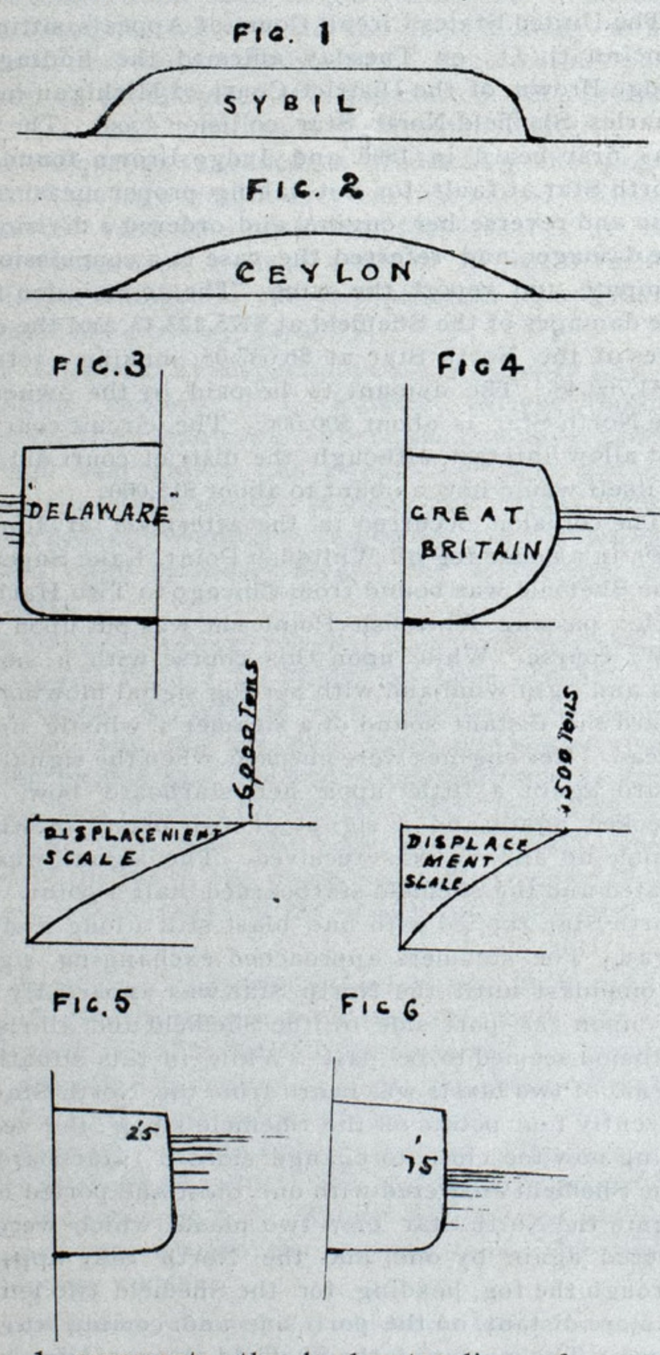


Fig. 1 represents the load-water line of a very full ship. Fig. 2 represents the load-water line of a fine ship, both being of the same principal dimensions and having the same midship section.

Now by the approximate tonnage, or half-breadth plus depth, or prismatic surface numeration, both vessels would require the same plating, though the one be of 6,000 tons displacement and the other 4,500 tons, this may appear to work out all right, but it is certainly not logically correct.

Again, with regard to depth, or depth plus extreme breadth being taken as the measurement for framing. Fig. 3 represents a steamer of full midship section. Fig. 4 a steamer with a sharp midship section; by the common rule both require the same frames. This surely is capable of improvement. Fig. 5 is an illustration of a vessel loaded down to 25 feet draft of water. Fig. 6 also shows a midship section of a vessel loaded down to 15 feet draft, both vessels being of the same principal dimensions.

Now with a difference of 40 per cent. in draft of water, and over 40 per cent. difference in displacement, surely there ought to be a considerable difference in the strength of floor plates, yet the great registers, so far as I am aware, take no cognizance of the difference in draft of water or load carried.

By my rule the 6,000-ton ship would require plating about 16 per cent. heavier than the 4,500-ton ship. Then for floors, by my rule the ship drawing 25 feet of water would require floors 30 per cent. heavier than the ship drawing only 15 feet of water.

For regulating the scantlings dependent on breadth, I would substitute the mean breadth for the extreme breadth.

In my book there is no provision for very light upper decks, as I believe that the most economical way of distributing the materials contributing to the longitudinal strength of a ship—that is to resist the bending moment—is to place the heaviest plates and bars at the bottom and at the weather deck and top-sides respectively, and for transverse strength the greatest weight should range about midway between the upper bottom and top flange, then no other special provision need be made to resist sectional shearing.

If light upper decks seem desirable for tropical trades let such be added independently. There is another point worth mentioning. I have observed greater vibration in steamers with comparatively light upper (weather) decks than in similar steamers with stronger weather decks and top-sides. I think that much of this modern vibration is attributable to modern steel construction. Our ships of to-day are generally longer and broader than the average steamer constructed ten or fifteen years ago, and the engine power is much greater in proportion to the inertia of the body.

It may not be impertinent here to give a resume of the various systems of measurement for thicknesses as prescribed by the several great registers. Two or three books express thicknesses in sixteenths of an inch, one book has somewhat recently (that is since steel shipbuilding was generally inaugurated by the building of the S.S. "Ethel" by Charles Mitchell for Henry Clapham, of Newcastle on Tyne, in the year 1878,) resorted to twentieths of an inch as its unit for thicknesses. Now, whilst we continue to be familiar with sixteenths in connection with iron shipbuilding, this is a convenient fractional part of an inch, for when sixteenths are changed into twentieths (the scantlings for iron ships being commonly quoted in sixteenths and those for steel in twentieths), the result represents a reduction of twenty-five per cent. Another recent innovation is a resort to fortieths of an inch in the endeavor to obtain smaller or more gradual degredations or increments. Then a further step has been taken in the same direction by expressing the thicknesses in pounds per square foot for plates and per lineal foot for angles and other bars.

I say expressing the thicknesses in pounds weight, and though this may sound paradoxical, perhaps it is not so, for it is thickness rather than weight we must have in mind, or indeed on paper, when making calculations of strength, especially for shearing stresses, and angle bars with unequal flanges must always be transposed from weight into thickness to ascertain the moment of inertia of such a structure as a ship or a bridge.

Now, my view has been and still is, that sixteenths, twentieths and fortieths of an inch should all be thrown overboard and that hundredths of an inch should be adopted in measuring thicknesses of steel, or indeed that the metric system should be accepted in its entirety as more in consonance with modern refinements in the manipulation of measures and also of weights. The substance of my suggestions then are about as follows:

That displacement and the ratio of depth to length govern the shell plating. That the total length of the vessel on the weather deck and the ratio of depth to length govern the stringer plates. That the total length and the ratio of breadth to length govern the deck plating. That the mean frame girth of the half section by the length, govern the size of frames, that the thickness of plating govern the spacing of frames. That the breadth of the midship section taken at one-tenth the depth above the base line, plus the maximum load draft (mean) govern the scantlings of the floors, and that thicknesses be expressed in hundredths of an inch.

As I cannot in this paper attempt to show what I consider the actual scantlings should be, I may add for those who care for my opinion that my views are in print regarding suitable scantlings for ordinary steamers.

In conclusion let me say, that though the correct basis for regulating the ratio of scantlings may be arrived at, the tenacity of the steel ship will always be doubtful unless the tenacity of the steel composing her structure be placed beyond reasonable doubt. Therefore, to ascertain the strength of a ship, it is necessary, of course, that the minimum strength of the materials be known, this may be estimated or approximated by the tests as set forth in several of the great register rules, but as it is impracticable to test every plate and bar as well as all the rivets in a ship, the most reliable requirement—in addition to physical and chemical tests—is to prescribe the elements of the steel and to see that the "enemies", such as sulphur and phosphorous, are sufficiently limited. The following limitations have been generally accepted by the principal steel manufacturers of this country as safe and reasonable, and I may add that considerable quantities of steel have been made to meet these requirements.

"Steel for ship plates must not show more than eight hundredths of one per cent. of phosphorus when manufactured by the acid open-hearth or acid Bessemer process and not more than five hundredths of one per cent. when made by either basic open-hearth or basic Bessemer, with not more than five hundredths of one per cent. of sulphur. Steel plates heated for flanging to be carefully annealed and severely indented plates requiring heating must be removed for annealing."

PASSING SIGNALS IN FOG.

We have been favored with the following recent correspondence that has passed between the general managers of the D. & C. Navigation Co., of Detroit, and the Goodrich Transportation Co., of Chicago, relative to giving course or helm signals in fog.

GOODRICH TRANSPORTATION COMPANY.
CHICAGO, May 3, 1894.

D. Carter, Esq., General Manager D. & C. Line, Detroit, Mich.:

DEAR SIR.—I would most respectfully draw your attention to the late circular or resolution of the Board of Supervising Inspectors, and approved by the Secretary of the Treasury, regarding the misuse of the whistle signals for steamers passing each other. To that part which says: "In fog, mists or falling snow, when vessels cannot see each other, fog signals only may lawfully be used or given, and pilots should, upon hearing the fog signal of another vessel, ahead or on either bow, run slow with frequent stoppages, until the fog signals of the opposing vessel are heard abaft the beam." It seems to me that this rule will be the cause of more trouble and disaster than ever before, or suspend all navigation while the fog lasts, which sometimes lasts for days at a time, especially when it is very dense, as when meeting head and head they can not tell what side to take without giving the passing signal, and can not see each other till they rub noses, a rather dangerous proceeding you must admit. We have written a remonstrance to the Secretary of the Treasury, and trust you and all transportation companies will do the same.

Yours truly,
J. W. GILLMAN, Superintendent.

THE DETROIT & CLEVELAND STEAM NAV. CO.,
DETROIT, MICH., May 5, 1894.

J. W. Gillman, Supt., Goodrich Trans. Co., Chicago, Ill.:

DEAR SIR.—I have carefully read yours of the 3d inst. relative to the change of the Pilot Rule X, whereby only fog signals are to be used during foggy and thick weather. Prior to the change referred to by you both fog and passing signals were legal.

Upon mature reflection I am inclined to believe the change is for the good. Now, only one set of legal signals are to be observed, whereas, before there were two sets with the greater liability for misunderstanding.

I enclose a copy of a letter of instructions to our masters and pilots by which they have been governed, so far as our instructions go, for many years, and the changed rule comes nearer to my idea of safe navigation, viz., that when you cannot see it is not safe to navigate.

We have endeavored to govern our men on this basis, and so far are well satisfied with the result.

Yours truly,
(Signed) D. CARTER, General Manager.

Following the tenor of the foregoing letter, Manager Carter issues the following letters of instructions to the officers of his line for the season of 1894:

To the Masters, Pilots and Mates of steamers of the Detroit & Cleveland Steam Navigation Co.:

GENTLEMEN.—The Pilot Rules require signals to be given when steamers overtake others and desire to pass, just the same as when meeting. The passing steamer must signal the other the side she wishes to pass. This rule applies when steamers pass within half a mile of each other.

We must insist, in these days of so many collisions, that great vigilance and care be exercised by our officers in regard to meeting and passing signals. They must be given at all times with certainty, with clear and distinct blasts, so that they can be heard by meeting vessels, and, furthermore, when there seems to be the least doubt or stubbornness on the part of other vessels or steamers, you must get your steamer under sure control by slowing speed, so that you can avoid collisions. Your attention has been repeatedly called to the necessity of the strict observance of these precautionary measures by recent disasters, and if these rules are not carefully and strictly observed by our officers, we cannot pass lightly over failures to comply with them.

I advise our masters, mates and pilots to obtain copies of the latest rules governing navigation, and commit the same to memory.

I must again caution you not to navigate our steamers in thick, foggy or stormy weather, unless you can see far enough ahead to avoid collisions. We would rather you lose a whole trip than have you jeopardize the lives of passengers and our property.

Also, when meeting or passing vessels outside, where there is plenty of sea-room, you must give them wide berths to prevent the many dangers arising from deranged steering gear. I would also call your attention to the rule requiring all passenger steamers to have a lookout while navigating, day or night.

From the foregoing, the whole responsibility of navigating our steamers rests with you, and your only safeguard is caution. Yours respectfully,
D. CARTER, General Manager.

Chief and Second Engineers of Steamers of the Detroit & Cleveland Steam Navigation Co.:

GENTLEMEN.—When your steamers are under way and you are on watch, and in charge of the engines, you are hereby commanded never to leave your engine alone but must at all such times be in a position where you can instantly answer all signals given for working your engines. Should it be necessary for you to leave your positions for any purpose, you must substitute an oiler, or other person, competent to at least stop or slow the engine in case signals are given therefor during your absence.

The rapid movement of our steamers through rivers and narrow channels, almost constantly meeting and passing other crafts, and the many contingencies liable at any moment to arise, makes it absolutely necessary for every officer having to do with the navigating of our steamers to be watch and ward and always at his post. Yours respectfully,
D. CARTER, General Manager.

TRANSFERS OF VESSEL PROPERTY.

Among the transfers of vessel property recently recorded at the Milwaukee customs office are the following:

Steamer Normandie—P. F. Thrall to Omar L. Harder, of Green bay, one-eighth, $1. Schooner Restless—Nels P. Peterson, of Menominee, Mich,, to William Haskin, of Marinette, Wis., the whole, $275. Schooner City—S. V. D. Philbrook, of Marinette, to Christian Braunsdorf and Christian Nelson, of Claybanks, Wis., the whole, $450. Steamer J. E. Rumbell—George Eisenhardt, of St. Joseph, Mich., to Elizabeth Eisenhardt, the whole, $3,500. Yacht Jeanette—Charles Wilson, of Chicago, to Cyrus J. Williams, Paul Krenger and John Jeys, Jr., of Milwaukee, the whole, $1. Scow Sea Lion—Mrs. Jennie Graham, of Fish Creek, Wis., to George Eisenhardt, of St. Joseph, Mich., the whole, $500.

SCREW PROPELLERS, REVERSING SCREW PROPELLERS, AND NON-REVERSIBLE ENGINES.

By Mr. Robert McGlasson, Hon. M. I. M. E.

Read at Cardiff, England, December 7th, Stratford, London, England, December 11th, 1893, and at Bombay and Calcutta.

Part 3.

The reversal or manipulation of the blades may be effected from the bridge or any other part of the vessel as well as from the engine-room, on emergency or when desired, just as easily as the helm is now operated therefrom. The vessel can also (hereby) be instantly steered (by the twin screws) in the event of the rudder breaking down. The time occupied and risk in transmission of orders would be saved in the event of imminence of collision, fogs, etc. All sudden stopping and starting is detrimental to the machinery and boilers, and is avoided.

Long experience has proved that the modification of the pitch of a screw may be made to effect considerable improvement in the speed of a ship or in the power taken to propel it at a given speed. It is also known that when a ship is lightly loaded, economic advantages attend the power of changing the pitch of the screw as compared with that which is used, and is best, when the ship is fully loaded. Draught, state of bottom, wind, current, coal burnt, etc., all affect the economical question; and to secure the ideal propeller we must change it every day.

By my system, the adjustment of the pitch may be made whenever required, either for obtaining the most efficient angle, for manœuvring, for steering, or for stopping and reversing, with no trouble or risk whatever. For manœuvring purposes, entering and leaving port, navigating crowded rivers or estuaries, etc., this system will relieve the engine-room staff of a lot of orders closely following each other, often of vexatious contrariety, and always involving a lot of harmful reversal of stress (sometimes amounting to strains) of engines, shafts, propellers and boilers. (Those amongst you who have had the happiness of "standing by" during a fog, in a crowded river or channel will appreciate this.)

For modern fleet and war manœuvring it will be found to be an absolute necessity.

The engines, during temporary stoppages, are "run light," so engine-driven air pumps are still operated, and no dead points are possible.

In all cases the power is regulated to suit the developed propulsive area—in the case of steam by throttling all intermediate passages if necessary, or by varying the expansion—even while the blades are being turned for reversal, and this facility of feathering the screw blades and reducing the power employed while "hovering," will be of very great advantage to war ships, and on occasion, temporarily reduce the horse power employed from thousands to hundreds. This power regulation is automatically effected while the blades are being turned, and is capable of further manual or motor adjustment when desired.

Single acting engines may be used; we can remove the strain of working and holding heavy valves from and by the main shafting; we are able to connect the lengths of shafting by screwing the ends or by screw collars (avoiding all the trouble connected with bolts and nuts), and we can also, by special means which are practically possible to my system alone, prevent racing from any cause whatever.

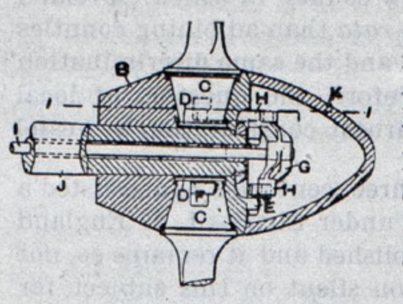
The reversal can be affected by hand or motor, by gear on main shaft, by fluid pressure, or by electric gear, and in the largest vessels can be carried out by simply operating a wheel, lever or switch, and moving a valve or sliding a clutch along a shaft.

Modifications of the outboard operating gear which I use in some of my combinations, have been well tested. The "Calliope" faced and conquered the hurricane at Samoa in which the German and American war vessels were lost. She was then fitted with the feathering screw of my esteemed friend, Mr. Bevis. The well known sea-going yacht, Lord Brassey's "Sunbeam," which traveled round the world, was fitted with another. I could multiply instances, but there is no need to do so.

My outboard gears are operated while the engines are running; they are in frequent use, so it is impossible for them to stick through inattention or corrosion, especially as they are effectively lubricated, and experiments I have made prove the fact that they have to perform but light work. Developments of the propellers and gears I advocate have been running for over eighteen months, and have given great satisfaction. They are very easily operated, and one opened out the other day after several months' service, was found in as good condition as when floated.

I will now explain one or two merely typical diagrams, which must be looked upon as explanatory only:

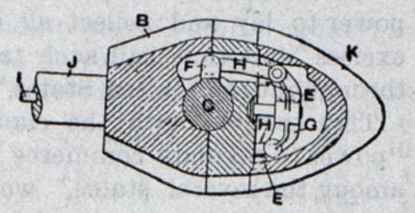
ONE TYPE OF PROPELLER BOSS (DIAGRAMATIC ONLY).



ELEVATION

Fig 1

Figures 1 and 2 show one form of feathering-bladed propeller on a tail-shaft J, through which passes a rod I, having fixed on its outer end a crosshead G. To this crosshead are pivoted short connecting rods H, also pivoted to the short lever F, projecting from the propeller stem C. As shown in the illustrations the blades are in mid position, or at right angles to the propeller shaft. By moving the rod I, the crosshead G, and thereby the propeller blade stems, the blades may be made to take any position between their extreme positions, which are determined by the lever F coming into contact on either side with the beveled surfaces shown in Fig. 2. By moving them from one position to the other the direction of propulsion is reversed, and between these positions any desired change of pitch may be made to suit the requirements of the ship or of navigation. The boss B is oil-tight and kept filled with oil.



PLAN.

Fig. 2.

(To be continued.)

THE RELATION OF CERTAIN ATMOSPHERIC CHANGES TO CHANGES IN WATER LEVEL IN ST. MARY'S FALLS CANAL.

The following information, the result of a study made by Mr. E. B. Garriott of the Weather Bureau, of the stages of water in the St. Mary's Falls Canal, as recorded by the Engineer Corps of the U. S. Army, in connection with the daily weather charts of the Weather Bureau, is published for the benefit of the lake marine:

The St. Mary's Falls canal is situated at Sault Ste. Marie, Mich., at the foot of the rapids in St. Mary's Strait, and connects the navigation of Lakes Superior and Huron. It is about 60 miles from Lake Huron and 6 miles from the head of Whitefish Bay, Lake Superior. The canal is one mile in length, and has two locks, in area 400 by 80 feet, each.

A record of the morning water levels in the canal for the months of May, June, September and October, 1892 and 1893, furnished by the U. S. Engineer's Office, shows that during that period the greatest available depth of water in the canal was 15.207 feet, and the least 13.507 feet, giving a range in the water level of 1.7 foot. The greatest monthly range in depth was .91 foot in October, 1893, and in four instances only was a range of more than .50 foot noted in twenty-four hours. Although the changes in the water level are seemingly small, the depth of water available during the lower stages is insufficient for the passage of deeply laden vessels. A foreknowledge of the available depth would, therefore, result in the saving of a large amount of money to owners of vessels having cargoes passing that point.

An examination of the changes in the water level for the eight months named, made in connection with observations of atmospheric pressure and wind direction and force at points on Lakes Superior and Huron, shows that changes in the available depth of water in the canal are intimately associated with fluctuations in atmospheric pressure. A marked increase in the available depth attends the passage eastward over Lake Superior of areas of low barometric pressure, and a decrease in depth generally occurs with the passage of high areas over the northern Lake region. The wind direction and force are not, apparently, active agents in producing the changes in the stage of water, but are incidental to the passage of low and high areas.

During the eight months referred to an increase in depth of .25 foot, or more, in twenty-four hours was noted in nineteen instances. On the mornings of the days of marked increase in the stage of water the average barometric pressure was 29.73 at Sault Ste. Marie, 29.72 at Marquette, and 29.82 at Duluth, and the average twenty-four hour decrease of pressure was .20 inch at Sault Ste. Marie and .11 inch at Marquette; at Duluth there was an average increase of pressure of .01 inch. The wind directions at Sault Ste. Marie were about equally divided between southeast and northwest, indicating that region as the average position of the centers of low pressure. The generally northwest winds at Marquette and the prevailing northerly winds at Duluth also indicated eastern Lake Superior as the average position of the storm centers.

During the period under consideration a decrease in the depth of the available water was recorded in fifteen instances. On the mornings of the days of marked decrease in the stage of water the average barometric pressure was 30.08 at Sault Ste. Marie, 30.02 at Marquette, and 29.97 at Duluth, and the average 24 hour increase of pressure was .11 inch at Sault Ste. Marie and .04 inch at Marquette; at Duluth there was an average decrease of .05 inch.

In seventeen of the nineteen cases of marked increase in the depth of water a low area was central over Lake Superior the morning of the day for which the rise was recorded; in one case a low area occupied Wisconsin, and in the remaining case a low area was central northeast of Lake Huron. Thus, in practically all of the instances in which an increase in depth of .25 foot or more occurred, an area of low barometer was central over or near eastern Lake Superior, and in a majority of instances the low areas had advanced from the westward over Lake Superior.

While a marked relation was shown between the high areas which moved eastward over the upper lakes and instances of marked decrease in the depth of water in the canal, the connection was hardly as intimate as that which existed between Lake Superior low areas and instances of marked increase in the stage of water. This fact is probably largely due to the greater magnitude and gentler gradients of the high areas. It was also observed that in cases where the decrease in the stage of the water was marked, the fall was from an unusually high level to about the average stage for the month.

A summary of the results obtained shows that marked rises in the water level attended the passage of a common type of low areas which move eastward from Manitoba and Minnesota. Forecasts of increases in the stage of water in the canal must, therefore, be based upon the movements of low areas which appear west of Lake Superior. As low areas of this class advance from the Red River of the North Valley over eastern Lake Superior in about twenty-four hours, the presence of a well defined low over Manitoba or Minnesota in the morning would generally justify a forecast of a rise in water in the canal of at least .25 foot by the morning of the following day. Forecasts of falls in the water level can be made when the stage of the water is above the average, and an area of high barometer is advancing toward the upper lakes.

The object of this investigation has been to ascertain whether it is practicable to make forecasts of changes in the stage of the water in the canal, and it is believed that the facts and results herein presented will lead to a careful study of this subject by those interested in lake navigation, and will when considered in connection with the morning and evening stages of the water in the canal, which are telegraphed to Weather Bureau stations on the Great Lakes during the season of navigation, prompt observers to an endeavor to anticipate probable marked changes in the available depth of water for the benefit of the shipping interests of Lake Superior.

Mark W. Harrington,
Chief of Bureau.

Washington, D. C., April 30, 1894.

GAS LIGHTED BUOYS.

United States—Department G—Transportation.

Exhibitor—Safety Car Heating and Lighting Co. Address, New York. Group 85. Class 534.

Exhibit—Gas lighted buoys.

Award—Two full sized steel buoys of very good construction and workmanship. The experience of many years in various countries has shown that these buoys have ample buoyancy; that they burn continuously a number of days which can be exactly predetermined; that the flame is not extinguishable either by the wind or action of the waves breaking over them in a gale; that the quality of the gas employed is excellent; and that the apparatus for regulating the gas pressure of the burners is sufficiently good.

(Signed) Capt. D. Mertvago, Individual Judge.

Approved: H. Von Littrow, Pres. Dep't. Com.

Approved: John Boyd Thacher, Chairman Executive Committee on Awards.

Date, April 18, 1894.

NEW TUG FOR OSWEGO.

O'Grady & Maher, of Buffalo, have just finished a tug for the Connell Bros., of Oswego, N. Y. She will take the place of the Redford, which was lost last fall. The tug has been named the W. & J. Connell. She is 70 feet long, 15½ feet beam, 9 feet hold and has engines with cylinders 19 by 19 inches. Sidney Parrish is master and John Connell engineer.

THE MARINE RECORD

ESTABLISHED 1878.

PUBLISHED EVERY THURSDAY, AT 144 SUPERIOR ST., (LEADER BUILDING), CLEVELAND, O.

IRVING B. SMITH, CAPT. JOHN SWAINSON, } PROPRIETORS

BRANCH OFFICE:

CHICAGO, ILL., ... 179 LaSalle Ave.

THOMAS WILLIAMS, Associate Editor.

SUBSCRIPTION.

One copy, one year, postage paid, . . . $2 00
One copy, one year, to foreign countries, . . $3 00
Invariably in advance.

ADVERTISING.

Rates given on application.

Entered at Cleveland Post Office as Second-class Mail Matter.

CLEVELAND, O., MAY 10, 1894.

PINTSCH gas plants are now in operation at Chicago, Toledo and Buffalo, and others are being constructed at Detroit and Cleveland, so there would seem but little reason why the government should not provide this illumination for the channels and other obstructions to local navigation in our lakes, where an immense tonnage is being carried under constant hazard. Foreign countries have adopted this system of protection, and it would seem a most desirable one for this country. These buoys are so arranged that they can be supplied with illumination that will last from four to six months or longer and show a brilliant, constant light without the least attention except to recharge them, which with the numerous stations could be very readily done. The government has already about thirty of them in use on the Atlantic coast, and this week we notice the adoption or placing of two more, one in Boston harbor and the other to be stationed in Delaware Bay.

ACCORDING to present intentions, the handsome new twin screw passenger steamer now under completion at the yards of the Globe Iron Works Co., Cleveland, O., is to be named the Northland. Mr. J. J. Hill, president of the Great Northern railroad, and *per se* managing owner of these sister ships, may be congratulated on giving the first ship a decent, fitting and appropriate sign to travel under, but, in the name of all that is good in marine nomenclature, whatever does he want to tack such a name as the foregoing on the second boat for? There are surely enough euphonious and appropriate "Norths" left after capturing and utilizing only seven, to give the second "speed destroyer" something far more in consonance with what one should expect than Northland. On much the same grounds THE RECORD objected to Mr. Hill naming one of his freight steamers the North-Shore and apparently the objection was sustained, for none of the fleet carries around that cognomen to-day. In the former case we got in a verbal and personal appeal to the nomenclator, but in this instance we have to fire at a distance, although we hope that our aim will be none the less true on that account, for there is nothing national or distinctive in Northland anyhow.

THE lax enforcement of the laws appertaining to the "Rules of the Road" for preventing collisions at sea were never more flagrant than at present and no one seems to understand "where they are at." Relative to lake commerce in particular, it should be recognized that a large fleet of high classed, valuable, three to four thousand ton steamers are now plying on the limited waterways where formerly a comparative light draft mosquito fleet were wafted hither and thither, according to the inclination of winds and currents. The hasty announcement that passing signals in fog would no longer be tolerated by the government has had the effect of making confusion worse confounded, as some masters and pilots who had occasion to visit the offices of the local inspectors prior to the opening of navigation and receive the circular forbidding fog signals, are trying to live up to the rules, while others are unaware or only dimly perceive that some perhaps unimportant change has been devised, for of course all licenses do not expire during the close of navigation, hence, the men in charge of lake steamers have not been all personally notified of the intention to enforce the fog signal rules. The direct lesson to be learned from the present state of affairs is, of course, the old one over again, viz., that no changes in the established rules and custom of any trade ought to be promulgated without a due and, in the case of navigational and pilot rules, a lengthy notice and warning of the time such changes will go into effect.

LOCAL TAXATION OF VESSEL PROPERTY.

Local or county taxation is becoming a perfect nuisance to men owning an interest in floating property. This week a steamer was proceeded against by the county treasurer in Cleveland, the home port of the vessel, for taxes on a sixteenth interest owned by a Kentuckian, and a similar case occurred last week when a resident of Michigan objected to being levied on in Ohio.

The regularity of these temporory seizures of floating property seems to point out that county officials are becoming veritable land sharks and are desirous of hampering owners of vessel property in a greater degree than ever before, and especially is this feature in disfavor when it is found that a discrimination exists in counties of the same state, Cuyahoga county, in which Cleveland is situated, paying more *pro rata* than adjoining counties on either side of its borders, and the same discrimination exists in other states. Therefore, the question of local taxation is one worthy of earnest consideration by vessel men.

John Hampden nearly three centuries ago resisted a similar imposition of taxes under Charles I. of England until the law was finally abolished and it remains so, nor is the American Constitution silent on this subject, for Section 10, Article 1, provides that "No state shall, without the consent of Congress, lay any duty of tonnage." The Constitution also provides that "Congress shall have power to lay and collect all taxes, duties, imports and excises," but that "all such taxes, etc., *shall be uniform* throughout the United States."

This section, with the clause which gives Congress "power to regulate commerce with foreign nations and among the several states," would indicate that taxation rested with the national legislature, and not as at present imposed, by state, county and local discriminatory charges, according to the real or assumed exigencies of a limited vicinity. The Hon. Jarvis Patten, U. S. Commissioner of Navigation in 1884, dealing with the question of local taxation, foresaw that Congress alone should exact the taxation of vessel property, as it would be much to the advantage of all interested and to the relief of the several states which, under the various conflicting systems even then in vogue, were in danger of introducing a spirit of antagonism among themselves. We are not aware that any action was taken on the commissioner's report at that time or since, but we do know that the necessity for such action has gone on increasing year by year, and nowhere so marked as among the lake states, where tonnage and population has increased so rapidly within the past decade.

The present Commissioner of Navigation is of the opinion that agitation to secure state legislation on this subject would be much more speedily effective than an appeal to Congress. Such a method of procedure might, of course, be more speedy in some states, yet we doubt the wisdom of making innumerable explanations and working such legislation through each House and Senate to a basis of federal equalization of taxes and a uniformity of assessment on all floating property hailing from each state. Rather would we address ourselves to the task of pointing out to Congress the advisability of promulgating a uniform tax levy throughout the country whose national highways or waterways alone aid in the earning capacity of the property to meet the national impost. Furthermore, there is not a maritime state, save, perhaps, Pennsylvania, (whose revenue laws do not include floating property in the schedule as subject to taxation for either state, county or municipal purposes) that has not enacted special legislation to tax ship property in one form or another, though generally as a personal property tax, and it is at all times difficult to rescind a law that adds to the revenue of a locality.

It is inequitable if not an unjust impost to levy taxes on vessel property during a period of hard times when ships are losing instead of making money, and if we consider the enforced shortness of the season, it is unrighteous to impose or levy on lake shipping as personal property tax when the investment is a source of outlay or cost instead of increment during at least a third of the year, while shore interests are prone to at least return a fair interest on the investment during the entire period for which they are assessed.

PASSING SIGNALS IN FOG.

The committee of the Shipmasters' Association appointed to take measures for the suspension of the rule which forbids helm signals to be used in fog when vessels can not see each other, and not only this committee, but managers and owners of passenger and freight line steamers, have fairly deluged the Hon. John G. Carlisle, Secretary of the Treasury, this week with protests against the law being enforced on the lakes, though, as we learn that these communications were as a matter of course referred to the supervising inspector general of the steamboat inspection service, no headway has been effected towards the suspension of what is termed "this obnoxious enactment."

It is commonly observed that the pilot rules for lakes and seaboard do not expressly forbid the giving of passing signals in fog, and the code of laws governing the steamboat inspection service have been more closely scanned in this direction than ever before, with the result that a general impression prevails that the assumption of legality may be held in abeyance and that there would be more danger in obeying the resolution passed at the last session of the board of supervising inspectors than in totally ignoring it.

It matters not that the rule requires a vessel to be sighted before signalling to her, or that the members of the international marine conference could not frame proper passing signals in fog; the dilemma, if it ever existed, has been overcome in the lake trade and the passing signal in fog has become an established law through custom and universal usage, though who is reponsible for the successful adoption of a code which the talent of the world pronounce as an impossible one to carry out, it is hard to say. It is sufficient, however, to know that signals can be used on the lakes to indicate which side vessels intend to keep, whether they see each other or not, and this system has worked admirably in all cases in the past.

Masters and pilots can hardly understand why they should not convey direct intelligence to other vessels in the vicinity, nor can they imagine what Supervising Inspector Westcott, as chairman of the committee on pilot rules, meant by his attempt to nullify their custom, only within the past few days a three thousand ton steel steamer ran into a wooden boat with a tow of three barges in the supervisor's own district through endeavoring to follow out his incomprehensible ruling on this subject. Certainly it is some satisfaction to know that it comes directly within Capt. Westcott's province and duty to find out the actual cause of the collision on Lake Huron, for, according to the master of one of the colliding steamers, no one was to blame and the casualty was solely attributable to the lack of helm signals to indicate on which side the steamers should pass; hence, they nosed together, resulting in a few thousand dollars' damage and detention, but happily without loss of life.

Any changes in the pilot rules or the enforcement of neglected rules should in the future be given due notice of, but the first duty of the supervising inspectors of the lake districts should be to look thoroughly into the working of this latest enforcement of an old neglected rule and advise the chief of the service as to the result of their investigations, so that the law may be suspended on the lakes or rigidly enforced.

WHAT IS A DOCK?

Transport, of London, and the New York *Maritime Register* have got into an interesting discussion on the question of "What is a dock?" Each supports local definitions, or rather customary parlance at their respective geographical centers, so, of course, *Transport* feels like calling all loading and discharging berths, docks, as, owing chiefly to the ebb and flow of the tides, as well as the exposed position of many seaports in the United Kingdom, docks prevail. The *Maritime Register*, holding strictly to American nomenclature, and quoting Webster, says Webster's first distinction of a dock is sufficient to settle the controversy as follows: "An artificia basin, or an inclosure, in connection with a harbor or river used for the reception of vessels, and provided with gates for keeping in or shutting out the tide." This is the chief definition. All the other definitions cited, it will be noticed, speak of wharves or piers, and simply a clear distinction between them and docks. That writers may give the general term docks the places where vessels are received, is due no doubt to the many kinds of docks in use, but where there is a distinction in kind, we submit that that distinction should be mentioned. Webster's dictionary defines a wharf as "a structure or platform of lumber, masonry, iron, earth or other material, built on the shore of a harbor, river, canal or the like, and usually extending from the shore to deep water, so that vessels may lie close alongside to receive and discharge cargo, passengers, etc.; a quay; a pier." The same authority gives under the definition of docks, balance dock, dry dock, graving dock, hydraulic dock, floating dock, screw dock, sectional dock, wet dock, all of which can really be placed under the first definition of being artificial enclosures or basins. From their definition the *Maritime Register* maintains that if a name means anything the water front of New York is lined with wharves and piers and not with docks, and more wharves and better wharves and larger wharves are wanted. But as for docks, we want none of them, other than those in which ships are taken for survey or repairs. Of course, the *Register* is perfectly right in its contention and *Transport* has been led away by relying too much on the English side of the definition of what is a dock.

IF vessel owners do not desire to vouch for the citizenship of each member of the crews which their vessels carry, they can not make too strong a representation at

this time to the committee at Washington hearing evidence on the Lockwood bill to prohibit any but American citizens from shipping on a lake vessel. Strong protests by wire are in order.

TRIAL TRIP OF THE NORTH WEST.

The North West, built at Cleveland, O., for the Northern Steamship Co., was given a preliminary or builders' trial trip on Monday, and after continuous steaming for about eight hours was found to work admirably in every department of construction and equipment.

These steamers (the sister ship will shortly be completed) are intended to form a passenger connection on the lakes for the Great Northern trans-continental railroad, and will leave Buffalo semi-weekly, calling at intermediate ports, carrying passengers through to the head of Lake Superior and leaving each terminal point on schedule time.

On the trial trip, although no attempt was made to get the maximum speed out of the vessel, she covered about nineteen miles in 55 minutes when turning up only 102 revolutions, so that a twenty mile gait, the contract speed, will be easily surpassed.

Much has been written regarding these handsome twin screw steel passenger steamers, and they are now known almost as well abroad as on the lakes; however, at the risk of repetition we note their principal dimensions as being 386 feet over all, 44 feet beam and 34 feet depth of hold. Built entirely of steel, with transverse and longitudinal bulkheads, divided into numerous water-tight compartments, the construction has been planned and carried out with the view of making the steamers not only the most modern and luxurious, but also the strongest and safest on the lakes.

The engines, two vertical quadruple expansion are of 3,500 horse power each. The sizes of the cylinders are 25 inches for the high, 36 inches for the first intermediate, 51½ inches for the second intermediate, and 74 inches for the low pressure, with a stroke of 42 inches. Piston valves are used on all the cylinders; one for the high, two for the first intermediate, two for the second intermediate and two for the low pressure, arranged outboard on the working side. All are operated by the Joy valve gear and reversed direct by steam and hydraulic gear. The reverse arms are slotted and are fitted with blocks and adjusting screws. The most radical change in equipment of machinery is found in the adoption of the Belleville patent water tube boiler system, capable of furnishing 7,000 horse power, and each boiler power is divided into three groups of generators. The work upon these boilers will challenge the best work ever done in the United States, and these, as well as the engines, are the advanced engineering of the present day, upon which depend the high speed at which the vessels are required to average on their route.

The steamer is lighted throughout with electricity, which is furnished by three separate plants and supplied with 120,000 feet of wire.

The officials who participated in the builders' trial trip were: General manager of the Northern Steamship Co., Mr. John Gordon, and Mr. F. B. Gordon, of Buffalo; also Mr. Tucker, general agent at Cleveland representing the owners; A. McAdoo, consulting engineer; William Peck, expert mechanical engineer; Mr. M. A. Hanna, Mr. John F. Pankhurst and Mr. Luther Allen, representing the builders. The heads of departments of the Globe Iron Works Co., were also present, as well as a limited number of invited guests, who were courteously entertained by Mr. Fred Gordon, assistant general manager of the Northern Steamship Co., who we must say bids fair to become one of the most popular gentlemen connected with lake marine interests.

THE YARROW WATER TUBE BOILER.

A new form of marine boiler, which is attracting much attention just now, is the Yarrow water tube boiler. It was fitted in the British torpedo boat destroyer Hornet, and that craft attained the phenomenal speed of nearly twenty-eight knots per hour on her trial trip, which took place March 1. The indicated horse power and weight of different types of boilers, with smoke box, water and fittings complete, is given as follows:

Authority.	Type.	Vessel.	I. H. P.	Weight in Tons.
Howden.....	Scotch with Howden system....	.....	8.000	361
Howden.....	Belleville.....	S. S. Polynesian.	8.080	380
Northern S. S. Co.	Belleville.....	S. S. North West	7,500	362
Engineering.....	Yarrow.....	H. M. S. Hornet	4,300	43
.....	Yarrow.....	.....	8 600	86

It should also be noted that the result of the trial of the Hornet showed that the boilers were unnecessarily large for the power required to be developed. We have already described the Hornet, her most important feature of novelty being the adoption of the Yarrow type of water tube boiler, of which there are eight in number. The Havock, whose trial took place the latter part of last year, is an exactly similar vessel, and provided with engines of the same design. The Havock, however, has the locomotive type of boiler, two being fitted. The difference in the results obtained in the two vessels proves the superiority, in point of securing a high speed, of the Yarrow water tube boiler over the locomotive boiler. A comparison between the results of the Havock and the Hornet shows that in the former vessel on the official trial approximately 3,500 horse power was indicated, while in the case of the Hornet 4,000 horse power, which, approximately, is in direct proportion to the cubes of the speeds of the two boats, the consumption of fuel also being in direct proportion to the powers indicated. The air pressure in the stokeholds of the Havock was about 3 inches, and in the Hornet 1½ inches.

The official trial trip of the Hornet, taken in the forenoon of March 19, 1894, during calm weather, gave the following results:

REVOLUTIONS.		TIME.			
Starboard.	Port.	Min.	Sec.	SPEED.	
395 9	395.4	2	17.6	26.163	
384 4	386 8	2	6 4	28 481	Steam in boilers, 170 lbs.
384.7	392 2	2	16.6	26.355	Air Pressure, 1½ in.
391.3	392.7	2	6 8	28 391	27.313 Vacuum, 26 in.
380.0	381 7	2	18.0	26 087	
394.3	394.3	2	7.8	28 169	

The diameter of her propellers is 6 feet 4 inches.

DEPTH OF WATER AT THE "SOO."

Depth of water at the St. Mary's Falls canal for the week ending May 10, is as follows:

May 3	8 a. m.,	14 ft. 3 in.	8 p. m., 14 ft. 8 in.
" 4.....	"	14 " 6 "	" 14 " 6 "
" 5.....	"	14 " 6 "	" 14 " 0 "
" 6.....	"	14 " 4 "	" 14 " 4 "
" 7	"	14 " 9 "	" 14 " 7 "
" 8.....	"	14 " 8 "	" 14 " 4 "
" 9.....	"	14 " 4 "	" 14 " 5 "
" 10.....	"	14 " 7 "	"

TRANSFER OF THE COAST SURVEY TO THE NAVY.

Considerable attention is given by the House naval affairs committee to Representative Enloe's bill to transfer the work of the coast and geodetic survey from the supervision of the Treasury Department, partly to the Hydrographic Office in the Navy Department and partly to the geological survey in the Interior Department. The proposed transfer of the bureau has awakened the liveliest sort of interest and much of the time of the committee has been taken up in hearings and arguments pro and con. They have not yet been concluded, but will be resumed at the next meeting of the committee. The friends of the bill contend that the Hydrographic Office is the proper place for a large portion of the work now done by the coast and geodetic survey, that the proposed transfer has received the sanction of the Secretary of the Navy, and should be made. Prof. Mendenhall, now in charge of the survey department, will be heard by the committee before any decision is reached.

CONGRESS ON INTERNAL NAVIGATION.

Invitations are out to the sixth Internationa Congress on Internal Navigation to be held at The Hague. The congress will be opened on Monday, July 23rd, 1894, at the Academie des Baux-Arts, and will continue for six days. Members of the congress will be delegates from governments and delegates accredited from chambers of commerce, railroad and navigation companies and other transportation associations, technical and scientific societies, and other interested persons. The several subjects to be discussed at the congress were published in our issue of the 3rd inst.

Forty-one papers have already been received from engineers and others. Two excursions are now announced to take place during the week of the congress, one to Rotterdam and the other to Amsterdam. There will also be three other excursions held after adjournment of the congress, one to the Haarlem mere and to several places below sea level; one to the new mouth of the Meuse, and the third to the Zuiderzee, the Island of Urk and the province of Overyssel.

Membership in this congress, which carries with it the papers and discussions printed in either French, German or English, and the right to take part in the meetings and excursions, can be secured at a cost of $5. Subscriptions may be sent to the secretary of the American Society of Civil Engineers, 127 East 23rd street, New York City.

RAFT TOWING.

Congressmen Baldwin and Hangen, of Minnesota, are bitterly opposing certain sections of the River and Harbor bill, which the committee inserted, regulating the size of rafts of logs to be towed through the Sault canal to 50 by 300 feet. The two members from the head of the lakes called on Congressman Catchings, chairman of the committee on rivers and harbors, and finally succeeded in having the matter held back until the Duluth lumbermen could prepare an amendment, and the matter will then be re-opened for consideration. It is also expected that the sections will be closely contested in the Senate.

MARITIME LAW.

U. S. District Court, Southern District of New York.

TROUTON ET AL. v. STEAMSHIP SAALE.

1. COLLISION—STEAMER AND SAILING VESSEL—FOG—SPEED. In a fog so dense that a vessel cannot be seen until within 1,200 or 1,300 feet, a speed of 15 knots in a steamship is not moderate speed.

2. A steamship and a bark collided in a fog, the collision resulting in the sinking of the bark. It appeared that the primary cause of collision was a change of course of some five points on the part of the bark; but the evidence showed that the steamship was going at the rate of about 15 knots; that she saw the sailing vessel at a distance of about 1,250 feet and at once put her helm hard a port and stopped and reversed, but was unable to avoid collision. Computation showed that had her speed been nine or ten knots instead of fifteen, she would have passed well clear of the bark in spite of the latter's change of course; or had her speed been eight knots, she would never have reached the line of the bark's course. Held, that the speed of the steamship contributed to the collision, rendering her liable to owners of cargo on the bark for their loss.

Brown, J.

The above libel was filed in behalf of the consignee and insurers of the cargo of the Norwegian bark Tordenskjold to recover the damages arising from a collision between the bark and the North German Lloyd steamship Saale, whereby the bark was sunk on the high seas August 4, 1892, about 800 miles east of Sandy Hook, in thick fog. The libelants ascribe the collision to the high speed of the steamer in fog; the claimants, to the bark's change of course.

The steamer was on one of her regular trips from New York, sailing E. ¼ S. by compass. She was a first-class passenger steamship, 460 feet long by 67 feet beam, 4,765 tons register and 7,500 horse power. Her speed was then about fifteen knots. The wind was light from the west southwest and variable.

The bark was about 200 feet long, and making from 3½ to 4 knots per hour. She was supplied with one of the best mechanical fog horns, which I find was properly blown at regular intervals, giving two blasts as she was upon the port tack, and until the steamer's whistles were heard she was sailing about northwest. Before she was seen her fog horn was not heard upon the steamer. The bark had been for some time in thick fog. But there was not much fog where the steamer was until fifteen or twenty minutes before collision. The weather was hazy, with occasional showers of fog, and becoming thicker, all the usual preparations were made for thick fog. Her whistle was sounded regularly for about fifteen minutes before the collision. About five minutes before collision, as the evidence constrains me to find, the fog became dense about the steamer, and shortly afterwards—not over a minute before collision—the first notice to the steamer of the near presence of the bark was the sight of her sails, which, according to the testimony of the master, and of the first and fifth officers, who were on the bridge, appeared to be about half a point on her starboard bow, and at a distance estimated by them to be from 1,200 to 1,400 feet. The steamer struck the port side of the bark between the fore and main rigging and cut half or three-quarters through her, causing her to sink as soon as the steamer cleared.

The whistles of the steamer had been heard by Wolf, the wheelman on the bark, about ten minutes before. The wheelman testified that some five minutes before collision, noticing the continued approach of the whistles off his port bow, he gradually turned his wheel to port, and continued doing so until it was hard over at the time when the steamer was sighted; and this was done without orders, because he thought it necessary to get out of the way of the steamer. There can be no doubt of the fact that the steamer, instead of turning to port, turned somewhat to starboard, not only because the order was given to port her wheel, but because her propeller, while her engine was reversed, would undoubtedly bring her head to starboard; and her master testifies that he observed the compass at collision, and that she was then heading E. S. E., showing that she had veered a point and three-quarters to the southward. Without referring to further details of the testimony, none of which is sufficient to overcome or otherwise explain the above facts, it is evident from an inspection of the relative positions of the two vessels that the bark's change of course to starboard, after hearing the steamer's whistles, brought about the collision, and that without such change the steamer would unquestionably have crossed her bows by a good margin without collision. This fixes the primary responsibility for the collision upon the bark, and with that the sole responsibility also, unless it further appears that the speed of the steamer was not moderate, within the 13th Article of Navigation, and that this fault presumably contributed to the collision. * * *

Upon this point the claimants invoke the benefit of the rule that where, as in this case, the collision has been plainly, and by undoubted testimony, brought about by the gross fault of one of the vessels, such as a change of course of five or six points, whereby she ran

under the bows of the steamer, and this fault is plainly sufficient to account for the disaster, without which it would not have happened, "it is not enough for such vessel to raise a doubt with regard to the management of the other vessel; there is some presumption at least adverse to this claim, and any reasonable doubt with regard to the conduct of the other vessel should be resolved in its favor." Per Mr. Justice Brown, in the City of New York, 147 U. S., 72, 85. * * * * *

Considering that under the circumstances of this case the steamer ought to be exempted from liability if it is reasonably certain that the difference of speed would have made no substantial difference in the result. I am satisfied, however, that if the Saale had been going at the rate of nine or even ten knots instead of fifteen knots at the time when her engines were ordered to be reversed, the bark would have passed well clear to the northward before the steamer reached the line of her course.

In reaching this conclusion I adopt much of the data assumed by the distinguished counsel for the claimant, namely, the speed of the bark at three and eight-tenths knots; that at collision she was heading north half east and the steamship east southeast; that the bark was seen a minute before collision; that the order to reverse the engines of the steamer was then given, and her helm at the same time ordered hard a port; that in ten seconds afterwards her engines began to move backward; that the ship, under the combined action of her port helm and reversed engines—being a right-handed propeller—veered to starboard a point and three-quarters before collision; and that in order to avoid the collision the bark must have had time to move northward 147 feet further; that is, at least 24 seconds more time before the steamer reached the line of her course.

The distance of the vessels apart when the bark was first sighted, and the time that elapsed between then and the collision, are of the greatest importance. Taking, therefore, one minute as the least admissible interval, and 50 seconds as the time of actual reversal of the engine before collision, it is evident that the Saale, while diminishing her speed from fifteen knots to nine or ten, as the master states, could not have gone a less distance than that given by the average speed of 12½ knots during the intervals of 50 seconds, and that would be 1,020 feet. Adding 250 feet for the ten seconds before reversal would make 1,270 feet as the distance of the Saale from the point of collision when the bark was first seen.

The bark, during the same interval, would change about two points. When first seen she would therefore be heading about N. N. W., and at her given speed she must have advanced upon her course, swinging to north ½ east, about 350 feet. On tracing diagrams of these positions, the bark will be found to be about 1,350 feet from the steamer when first seen, and bearing one and a half points on the steamer's starboard bow.

Adopting, then, the distance of from 1,000 to 1,050 feet as the distance advanced by the Saale from the time of reversing until collision, computation shows that if her speed had been nine or ten knots instead of fifteen knots at the time when she reversed, she could not have advanced from 1,000 to 1,050 feet in less than from 85 to 110 seconds; and that the bark would consequently have been from 100 to 300 feet clear to the northward at the time when the steamer reached the line of her course; and that had the steamer been going at a speed of eight knots only, she would have stopped still in the water from 100 to 150 feet before reaching the bark's path. These computations are easily made, if desired, upon the data furnished by the evidence in this case in the same manner as shown in the tables in respect to the Normandie (43 F. R., 151, 159-161), where the data were substantially the same.

The result in this instance agrees with the presumption often stated that where the steamer is chargeable with the statutory fault of excessive speed, that fault presumably contributed to the collision until she proves that it could not have done so. The Penn., 19 Wall., 156; The Bolivia, 49 Fed. Rep., 171. It is always open to her to prove this if she can. The City of Rio Janeiro, cited in the Normandie, 43 Fed. Rep., 156. As the evidence in the present case, however, confirms the legal presumption, the libelants are entitled to a decree, with costs.

Dated, New York, January 29, 1894.—*Maritime Register.*

MILWAUKEE AND GRAND HAVEN LINE.

The steamer City of Milwaukee, of the Detroit, Grand Haven & Milwaukee Line, made her first trip of the season this week. During the winter the City of Milwaukee has been moored at Grand Haven, where she has, so far as the interior is concerned, been practically remodeled, refitted and refurnished throughout. New bulkheads have been put in and this staunch and favorite steamer strengthened in every way. Her officers are: Captain, D. A. McLachlan; chief mate, J. H. Smith; second mate, Daniel Long; chief engineer, Charles L. Barron; second engineer, Jean Scott; clerk, W. W. Stewart, and steward, Edward Nolan.

The City of Milwaukee and the propeller Wisconsin will form the Milwaukee & Grand Haven line during the present season, making daily trips and close connection with the Detroit & Grand Haven railroad for points east. The City of Milwaukee will leave for Grand Haven on Monday, Wednesday and Friday evenings at 8:30 o'clock, and the Wisconsin will leave for the same destination on Tuesday, Thursday and Saturday evenings. The City of Milwaukee was built in 1881, and with the improvements that have been made during the past winter, is now considered as good as a new boat.

REVERSIBLE PROPELLER WHEEL.

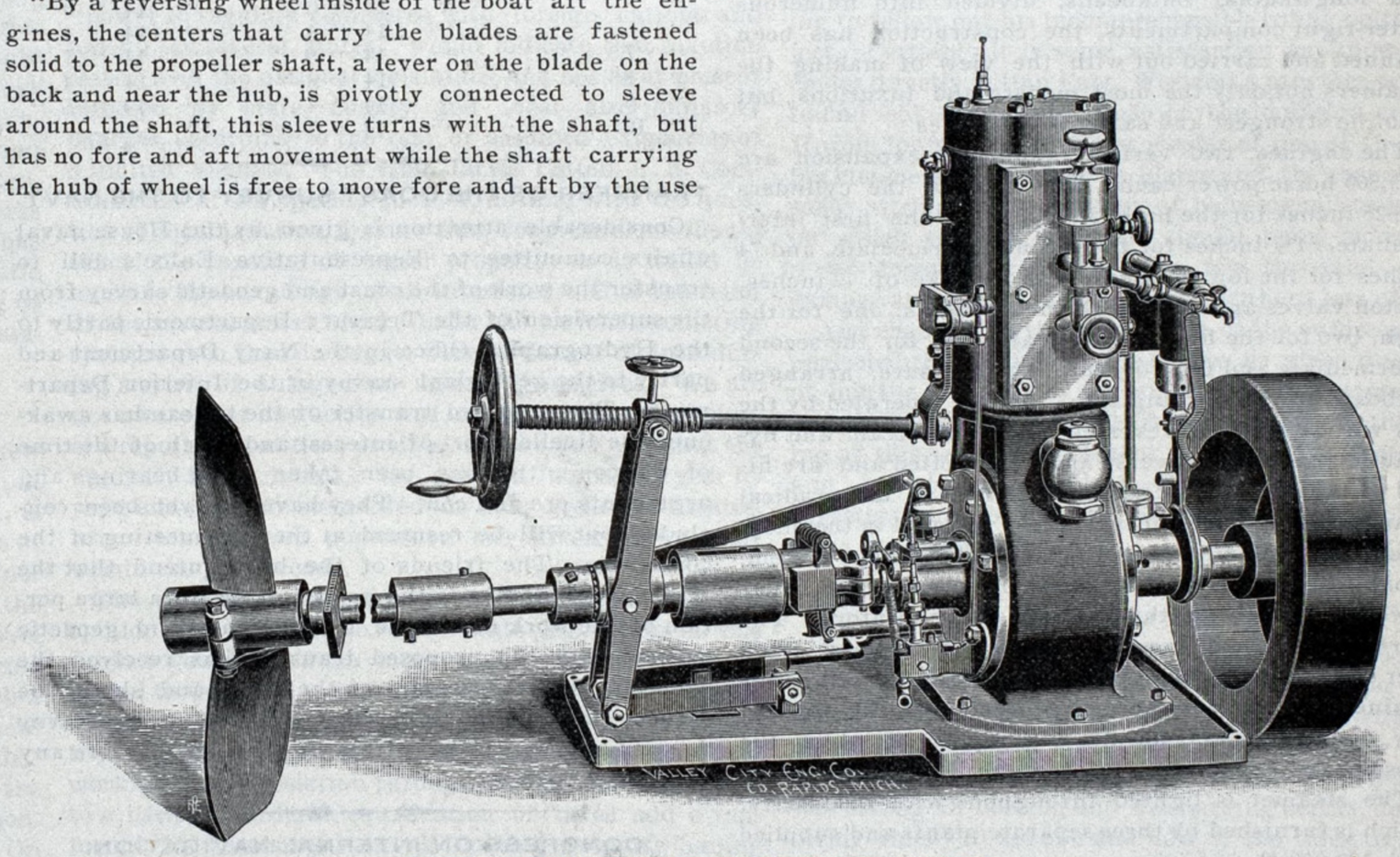
ILLUSTRATED.

The Sintz Gas Engine Co., of Grand Rapids, Mich., are the manufacturers of a new patent reversible propeller wheel which they place on their launches using gas engines.

This propeller wheel has been found thoroughly practicable, and in the smaller sized launches consists only of two reversible blades, that is, the wheel can be made a right or left hand screw while the motor is running, and when the propeller is adjusted for speed it forms a true screw of suitable pitch to absorb the full power of the engine.

The manufacturers describe the method of operating the screw as follows:

"By a reversing wheel inside of the boat aft the engines, the centers that carry the blades are fastened solid to the propeller shaft, a lever on the blade on the back and near the hub, is pivotly connected to sleeve around the shaft, this sleeve turns with the shaft, but has no fore and aft movement while the shaft carrying the hub of wheel is free to move fore and aft by the use of reverse wheel inside of the boat; the operation is as follows: Reversing wheel in the center permits the engine to turn and wheel to revolve, but the blades of wheel stand at right angle to shaft and offer no resistance to water, therefore does not move the boat in either direction; moving the reversing wheel forward gives pitch to blades and speed of boat is increased as reversing screw is moved forward, the governor controlling the speed of engine until the cam that operates gasoline pump is thrown in full and the full power is given to the wheel; the operation is the same in reversing. We have this wheel in successful operation and it is giving excellent satisfaction. With a boat 27 feet long running at 8 miles per hour she can be brought to full stop within her own length."



PATENT REVERSIBLE PROPELLER WHEEL.

A STEEL STEAM YACHT CONTRACTED FOR.

Drawings have been completed in Chicago by George Warrington for a large steam yacht for H. F. Balche, the owner of the Alcyone. The new yacht will have a length over all of 130 feet, with 16 feet beam, and will be built of the best plate steel 3-16 inch thich. The frames will be of a high test material, extra heavy and placed close together. The engine room will occupy the midship section of the yacht and will contain a powerful triple expansion engine, two Warrington boilers, besides condensers, feed and circulating pumps, as well as a complete electric light and storage battery system. Large coal bunkers will enable the yacht to take long cruises. Forward of the engine room will be located the dining room, officers' state rooms, galley and quarters for the crew. The fittings will include all the latest improvements. The entire ship abaft the engine room will be occupied by the owner and his guests. Mr. Balche will have a state room 10 by 12 feet, fitted up in white mahogany. Every luxury attainable in a yacht will be found in the owner's quarters, which will have a large bath and toilet room adjoining. The cabin will be 16 by 16 feet paneled in mahogany. Cabinets, desks, book cases and a piano will help to make the saloon enjoyable. Aft of the saloon will be the five state rooms for guests, together with bath and toilet rooms. There will be but one deckhouse, located well forward over the dining room, with which it will connect by a beautifully carved mahogany stairway. A steering wheel for bad weather will occupy the forward end of this room, while the rest of it can be shut off by a curtain so as to form a smoking room or social hall. In good weather the ship will be steered from the bridge. Electric and steam launches and lifeboats will complete the equipment. One of the most noticeable features of the ship will be the long flush deck off the deckhouse. It will extend fully two-thirds of the length of the ship.

It is the intention of Mr. Balche to begin work on the yacht this summer and have her ready for next season. If she comes up to the guaranteed speed she will be a credit to Chicago and convince local yachtsmen that they can get good work done at home. They have already discovered that when they buy a steam yacht with a down East record of eighteen miles, it invariably shrinks to twelve or fourteen miles by the time they get her to Chicago.

THERE IS BUT ONE DIRECTION.

At the North Pole there is only one direction—one could go south in as many ways as there are points on the compass card, east and west have vanished. The hour of the day at the pole is a paradoxical conception, for that point is the meeting place of every meridian, and the time of all holds good, so that it is any hour one cares to mention. Unpunctuality is hence impossible.—*Marine Journal, New York,*

PROPOSALS.

TREASURY DEPARTMENT, Office of General Superintendent U. S. Life Saving Service, Washington, D. C., May 1, 1894. Sealed proposals will be received at this office until 2 o'clock p. m. of Thursday, the 31st day of May, 1894, for furnishing supplies required for use of the Life Saving Service for the fiscal year ending June 30, 1895; the supplies to be delivered at such points in New York City, Grand Haven, Mich., and San Francisco, Cal., as may be required, and in the quantities named in the specifications. The supplies needed consist of beds and bedding, blocks and sheaves, cordage, crockery, furniture, hardware, lamps, lanterns, etc.; lumber, medicines, etc.; paints, oils, etc.; ship chandlery, stoves, etc.; tools and miscellaneous articles, all of which are enumerated in the specifications attached to the form of bid, etc., which may be obtained upon application to this office, or to the Inspector of Life Saving Stations, 24 State street, New York City; Superintendent Eleventh Life Saving District, Grand Haven, Mich., and Superintendent Twelfth Life Saving District, Appraisers' New Building, San Francisco, Cal. Envelopes containing proposals should be addressed to the "General Superintendent U. S. Life Saving Service, Washington, D. C.," and marked on the outside "Proposals for Annual Supplies." The right is reserved to reject any or all bids and to waive defects, if deemed for the interests of the government. S. I. KIMBALL, General Superintendent.

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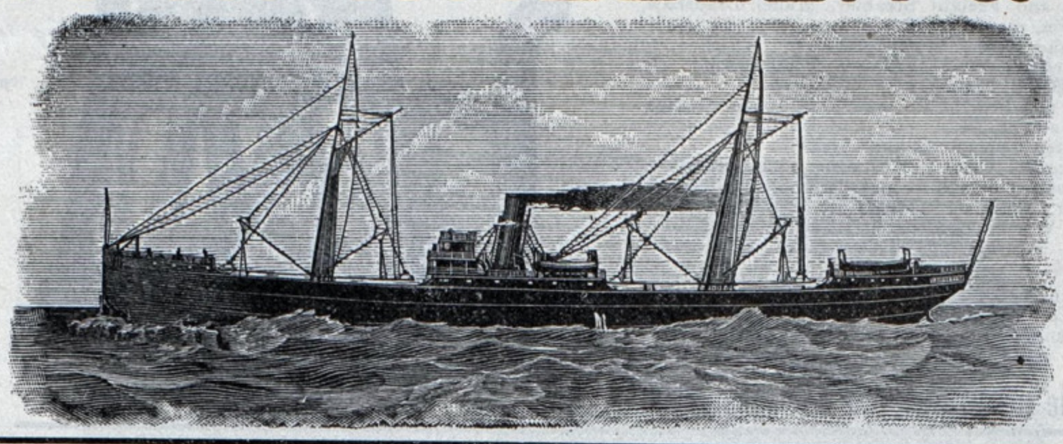

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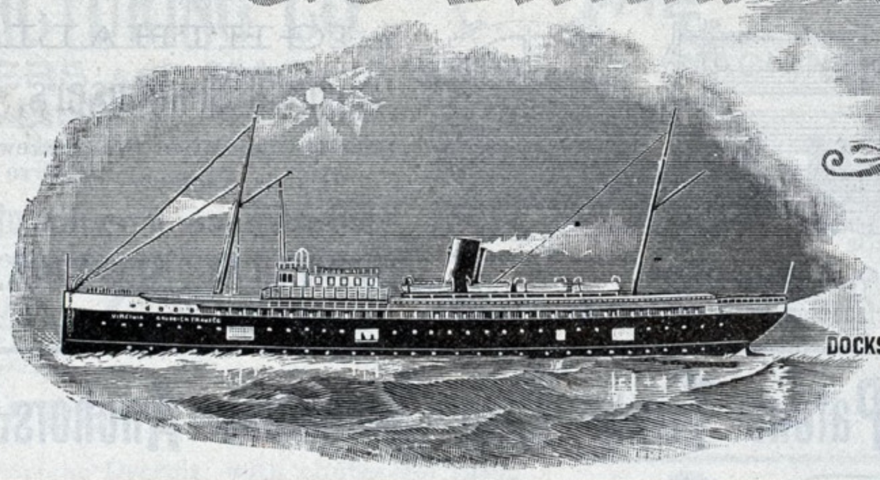

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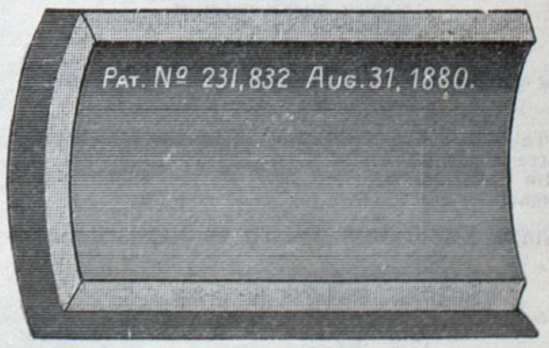

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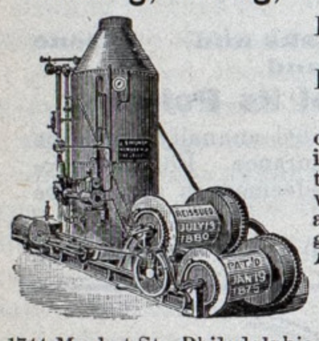

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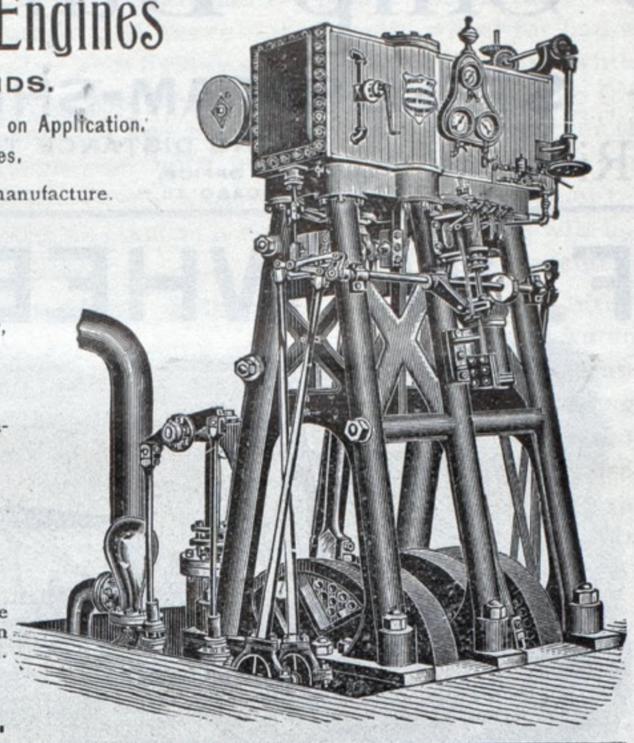

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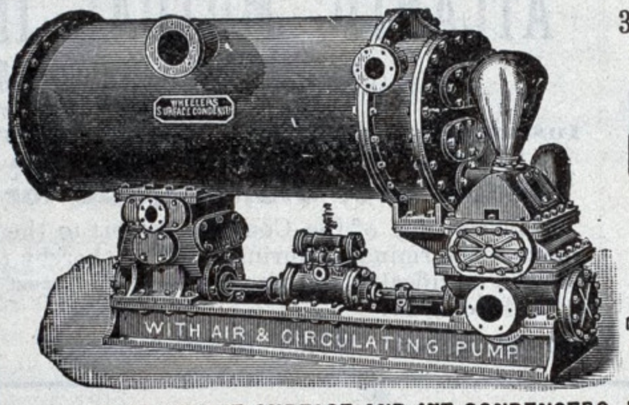

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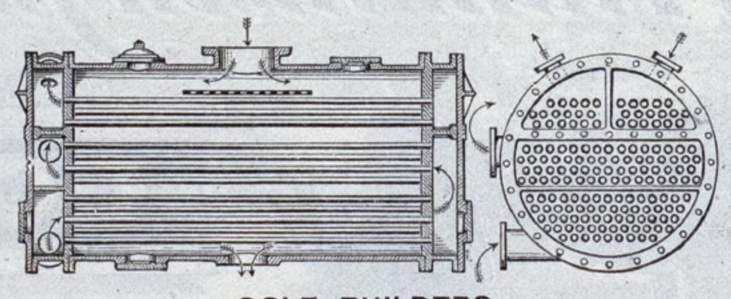

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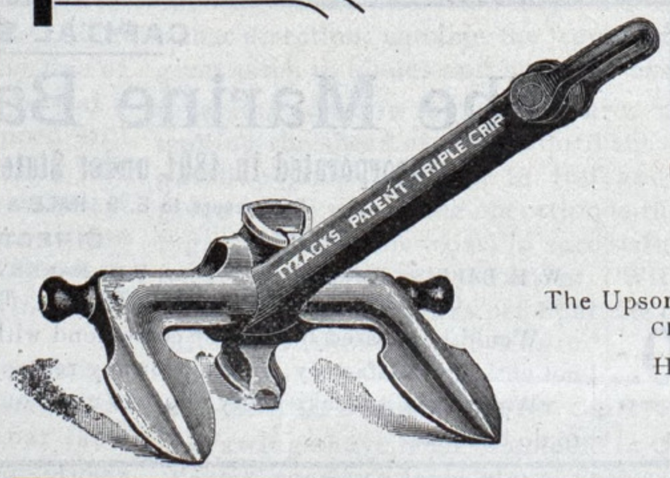

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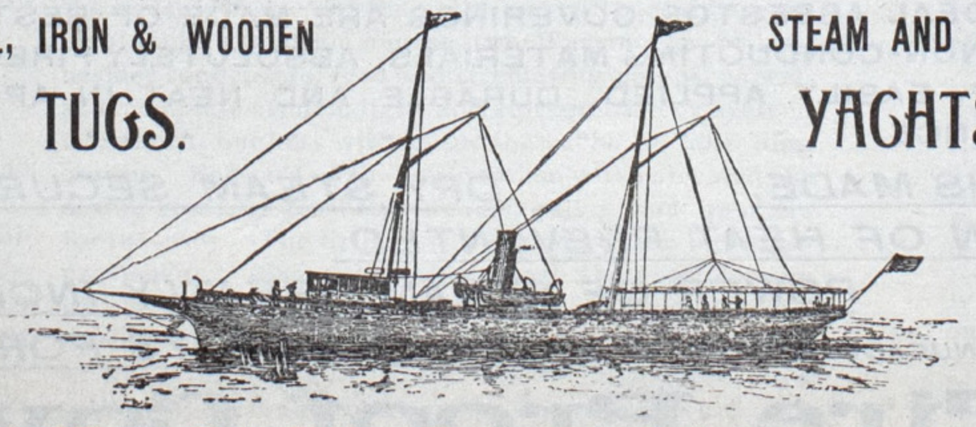

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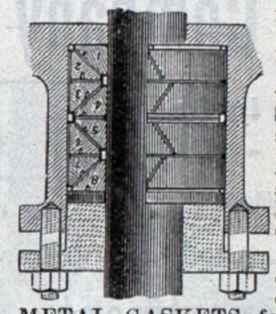

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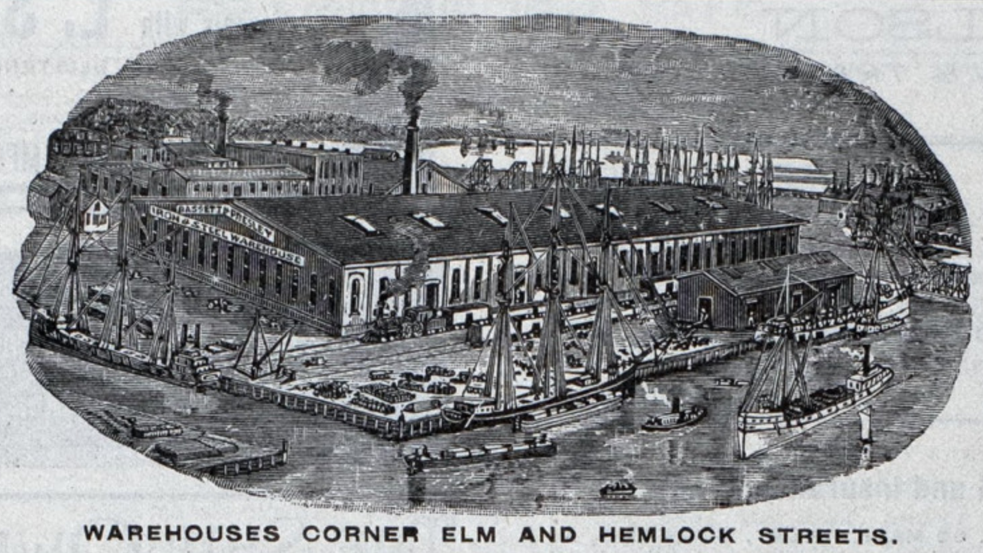

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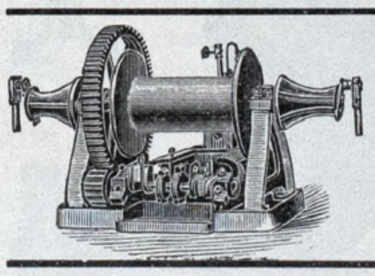

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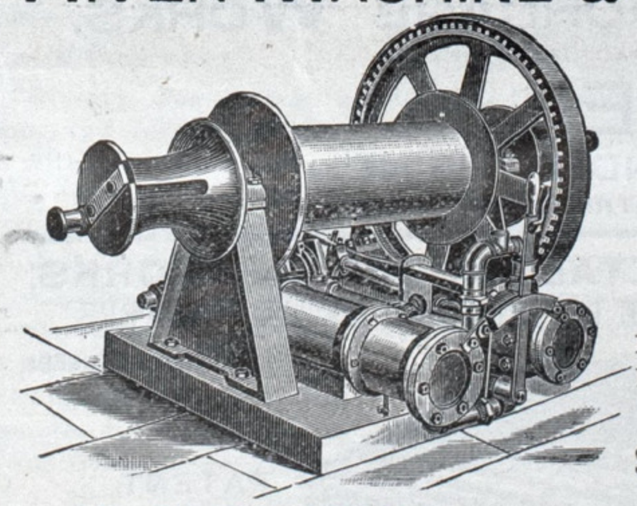

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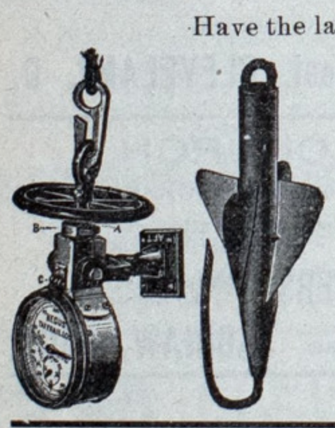

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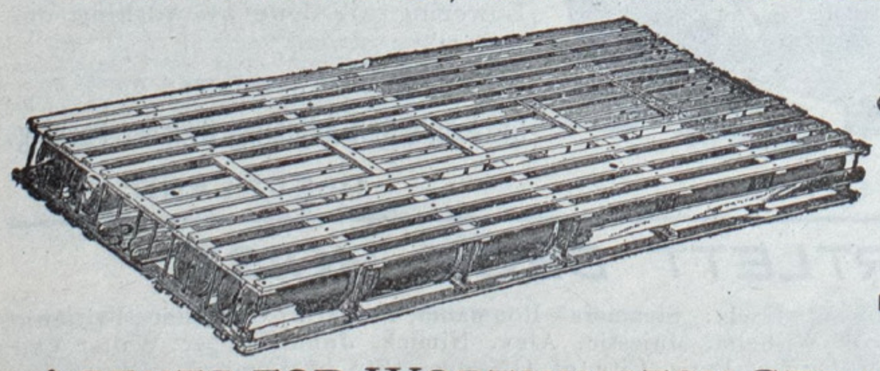

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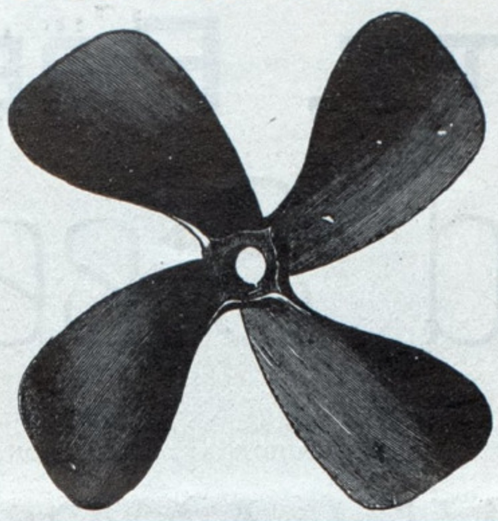

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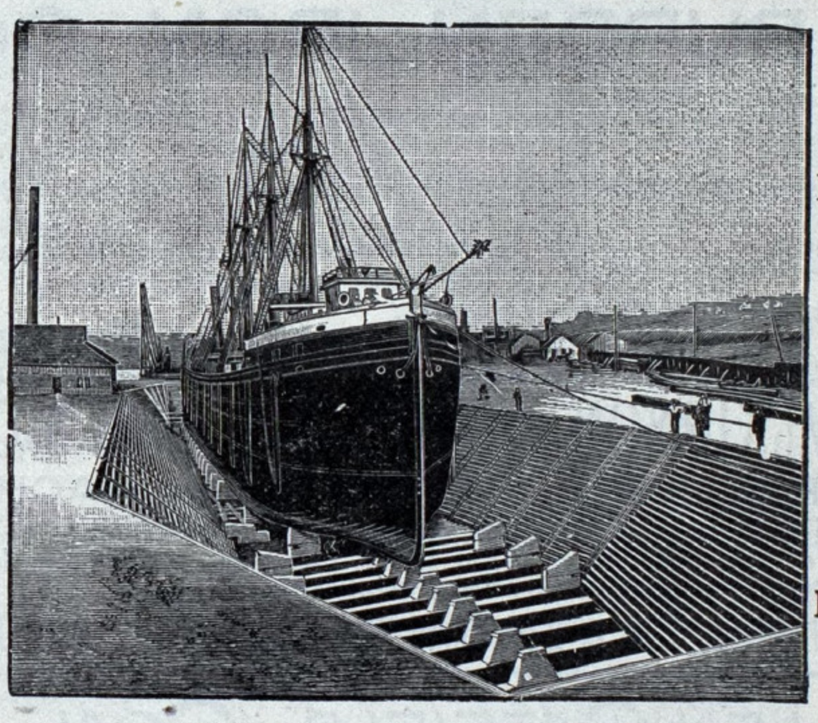

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